Issued January 20, 1916.

U. S. DEPARTMENT OF AGRICULTURE,

BUREAU OF SOILS—MILTON WHITNEY, Chief.

IN COOPERATION WITH THE STATE OF ALABAMA, EMMETT O'NEAL, GOVERNOR;
REUBEN F. KOLB, COMMISSIONER OF AGRICULTURE AND INDUSTRIES;
EUGENE A. SMITH, STATE GEOLOGIST.

SOIL SURVEY OF LAWRENCE COUNTY, ALABAMA.

BY

H. G. LEWIS, OF THE U. S. DEPARTMENT OF AGRICULTURE, AND
J. F. STROUD, OF THE ALABAMA DEPARTMENT OF
AGRICULTURE AND INDUSTRIES.

W. EDWARD HEARN, INSPECTOR, SOUTHERN DIVISION.

[Advance Sheets—Field Operations of the Bureau of Soils, 1914.]

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1916.

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LETTER OF TRANSMITTAL.

U. S. DEPARTMENT OF AGRICULTURE,
BUREAU OF SOILS,
Washington, D. C., June 22, 1915.

SIR: Under the cooperative agreement with the State of Alabama a soil survey of Lawrence County was carried to completion during the field season of 1914.

I have the honor to transmit herewith the manuscript and map covering this work, and to recommend their publication as advance sheets of Field Operations of the Bureau of Soils for 1914, as authorized by law.

Respectfully,

MILTON WHITNEY,
Chief of Bureau.

Hon. D. F. HOUSTON,
Secretary of Agriculture.

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SOIL SURVEY OF LAWRENCE COUNTY, ALABAMA.

By H. G. LEWIS, of the U. S. Department of Agriculture, and J. F. STROUD, of the Alabama Department of Agriculture and Industries.

DESCRIPTION OF THE AREA.

Lawrence County is located in the northwestern part of Alabama. It is bounded on the east by Morgan County, on the south by Winston County, on the west by Franklin and Colbert Counties (the latter separated from Lawrence County by Town Creek), and on the north by the Tennessee River, which separates it from Lauderdale and Limestone Counties. Its greatest length from north to south is about 34 miles and its greatest width from east to west 24 miles. The county comprises approximately 700 square miles, or 448,000 acres.

The topographic features of the county are quite varied and fall into four main divisions—the Tennessee River and creek flood plains, the mountain areas, the valley section, and the Coastal Plain. The valley section comprises the Tennessee and Moulton Valleys and the mountain section includes Little and Sand Mountains. Little Mountain lies in an east-and-west direction across the county between the Tennessee and Moulton Valleys. Sand Mountain lies to the south of the Moulton Valley in an east-and-west direction. (See fig. 2.)

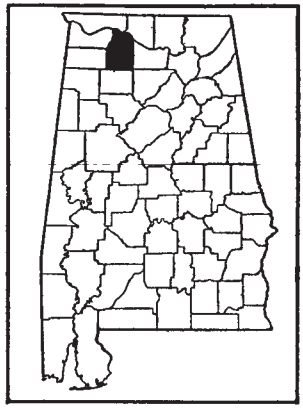

FIG. 1.—Sketch map showing location of the Lawrence County area, Alabama.

The river flood plain division comprises the overflowed lands along the Tennessee River and the larger streams of the county. The bottom lands along the Tennessee River generally are quite narrow and are lacking in places where the river is bordered by steep limestone bluffs. The bottom lands are widest in the northeastern corner of the county, where they range from three-fourths mile to 1 mile in width. The stream bottoms along Town, Big Nance, Flint, Mallett, and other creeks are wider in proportion to the size of the stream than along the Tennessee River.

The Tennessee Valley section extends along the Tennessee River from the stream itself to the Little Mountain division, which begins 7 to 10 miles south of the river. This valley section embraces level

to gently rolling or undulating uplands, with an elevation ranging from 20 to 75 feet above the Tennessee River and between 525 and 600 feet above sea level.

The Little Mountain section, an extension of the Cumberland Plateau, lies south of the Tennessee Valley and has an average width of about 7 miles. This section is characterized by rolling to hilly surface features, with gently rolling to almost flat plateau areas. It is approached from the Tennessee Valley by an abrupt escarpment ris-

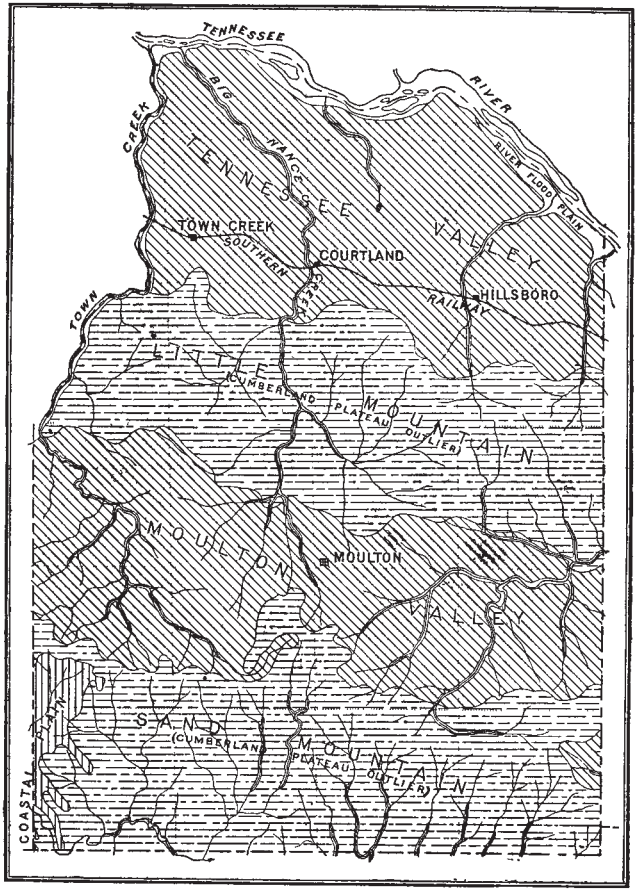

FIG. 2.—Sketch map showing topographic divisions of Lawrence County, Ala.

ing 100 to 250 feet above the general level of the valley. The general slope is toward the south. This section is locally known as the "mountain country."

The Moulton Valley region lies between the Little Mountain country to the north and the Sand Mountain outlier to the south and ranges in width from 4 to 9 miles. It embraces level to gently rolling or undulating uplands, with an elevation of 25 to 50 feet above the

Tennessee Valley and a general elevation of 575 to 650 feet above sea level. This valley section, which was originally overlain by sandstone formations such as are present on Little and Sand Mountains, represents the work of stream erosion.

The Sand Mountain division extends from the Moulton Valley beyond the southern boundary of the county, its width ranging rather irregularly from 3 to 9 miles. Sand Mountain reaches an elevation of 400 feet above the level of the Moulton Valley, and the altitude above sea level ranges from 700 feet along the stream courses to 1,000 feet on the ridge crests and higher divides. This section was originally a plateau with broad divides, but at present consists mainly of narrow ridge crests, with a few broader divides in the eastern part. The topography is rough and broken to mountainous, with deep stream valleys. The region might be considered a deeply eroded plateau with narrow V-shaped valleys. The descent toward the streams often becomes very rough and broken. The general slope is toward the south from the top of the distinct escarpment facing the Moulton Valley. This section also is locally known as the "mountain country."

The eastern edge of the Coastal Plain Province extends into the southwestern corner of the county, where it occupies an area of a few square miles. This section is characterized by less rolling and broken topography than the Sand Mountain country. It comprises ridge crests and upper slopes, with some gently undulating or undulating areas.

The lines of separation between the topographic divisions are rather definite, except between the Moulton Valley and Little Mountain, where the slope from the mountain to the valley country is gradual, and between the Coastal Plain and Sand Mountain, where the soil materials are very much intermixed.

Approximately five-sixths of the county is drained to the north into the Tennessee River, through Town, Big Nance, West Fork of Flint, Mallett, and Spring Creeks. The extreme southern part of the county (Sand Mountain) is drained to the south through various creeks which form the headwaters of the Warrior River. The Coastal Plain belt is drained mainly by the headwaters of Bear Creek, a tributary of the Tennessee, and the headwaters of Sipsey River. Drainage is well established throughout the county.

The territory comprising Lawrence County was originally held by the Cherokee Indians, and was ceded by them to the United States in 1817. The county was established in 1818, during the Territorial period of Alabama. It comprised the territory lying between the Tennessee River and the southern boundary of township 8 south, and between ranges 6 and 9 west. In 1895, by an act of the legislature,

that part of the county lying west of Town Creek, approximately 100 square miles, was annexed to Colbert County.

The early settlers came from Virginia, Tennessee, and the Carolinas. The first settlement was made at Marathon ("Meltons Bluff"), on the Tennessee River, about 2 miles above the present Lock A. The first courts were held here, but in 1820 the seat of government was established at Moulton, where it has remained. Courtland and Moulton were flourishing villages at that time.

According to the 1910 census, Lawrence County has a population of 21,984, including 15,051 whites and 6,933 colored. The valley section is thickly settled, while settlement in the mountainous sections is sparse. The greater part of the population is native born.

The chief towns of the county are Moulton, the county seat, 14 miles from the railroad at Hillsboro, with a population of 354; Hillsboro, with a population of 202; Courtland, 478; Town Creek, about 344; Landersville, Mount Hope, Wolff Springs, Wren, and Oakville.

The transportation facilities are not sufficient to meet the needs of the county. The northern part is traversed from east to west by the Southern Railway, Town Creek, Courtland, Wheeler Station, and Hillsboro being the shipping points. This line serves the Tennessee Valley, but is rather remote from points beyond. The larger part of the shipping is from Hillsboro, which is connected with Moulton, and with Landersville and Mount Hope, farther west, by a pike road. The Tennessee River furnishes water transportation, boats plying between Decatur and Florence, Ala., throughout the greater part of the year. Cotton and lumber are the principal commodities shipped by water.

Russellville, Franklin County, on the Northern Alabama Railway, is a market for a part of the west-central section of the county. Leighton, on the Southern Railway in Colbert County, and Haleyville, in Winston County, constitute local markets for the northwest-central and the southwestern parts of the county, respectively. Hartsells, on the Louisville & Nashville Railroad, in Morgan County, serves the east-central and southeastern parts of the county to some extent. Farm products, of which the principal one is cotton, are hauled to railroad towns for shipment to the larger markets, such as Decatur, Chattanooga, Memphis, Nashville, and Birmingham.

Public roads traverse all parts of the county. The roads as a whole are in fairly good condition during dry weather, but during the rainy seasons of winter and spring travel and hauling become difficult, owing to the heavy clay soils. Little attention is given to the grading of roads, so as to expedite run-off, or to dragging them after rains. The mountain roads as a rule follow divides, and as the soil is of a sandy nature they dry out very quickly. At stream crossings, however, they are rough and stony. Within the last few years the county

has built nearly 40 miles of pike roads connecting with the principal towns and the main roads. Road materials are plentiful throughout the county, especially in the valley sections, where limestone is found at or near the surface.

The county is well supplied with modern and substantial churches and school buildings. The Lawrence County High School is situated at Moulton. Gins are conveniently located throughout the county, and an oil mill is being built at Moulton. A comprehensive system of local and long-distance telephone lines has been estabished in the county. The rural lines are largely owned by the farmers. The rural delivery of mail reaches practically every section.

CLIMATE.

Lawrence County lies within the warm temperate zone, and the climate is characterized by long, hot summers and alternating cold and warm periods during the winter. The average annual temperature is about 61° F. The mean temperature for the winter months—December, January, and February—is about 42° F. Freezes, light snows, and cold winds and rains are common during these months. There is considerable cloudy, damp weather, usually accompanied by winds from the east, southeast, and south.

The mean temperature for the summer months of June, July, and August is about 79° F. During this season the winds from the mountainous sections have a tempering influence, and long-continued periods of hot and dry weather are not of common occurrence. The nights usually are cool.

The precipitation is ample for the growth of crops, and is fairly well distributed throughout the year. It is heaviest during the winter and spring, the mean for each of these seasons being a little over 14 inches. For the summer months the mean precipitation is about 11 inches, and for the fall months about 9 inches. While the large amount of rainfall during the winter and spring often retards the planting season, the light rainfall of the fall months is favorable to the harvesting of crops. The rains as a rule are from the south and southeast.

The average date of the last killing frost in the spring is April 5 and of the first in the fall October 15, according to the records at Decatur, Morgan County, giving a normal growing season of 193 days, which is ample for the maturing of all crops. The date of latest killing frost recorded for this station is April 15 and of the earliest in the fall October 2. Such crops as turnips and cabbage, as well as field crops of rye, oats, and some grasses for pasturage, can be grown during the winter months. Much farm work, such as the clearing of lands, plowing, and fencing, can be done during the open winter.

Lawrence County is well supplied with good water for home use. In the valley sections there are many springs, and water is reached at 30 to 100 feet in wells. On Little and Sand Mountains, however, water can not be obtained so easily, owing largely to the open structure of the soil. There are very few springs in this section, and water is not so near the surface as in the valleys. During long-continued periods of dry weather the wells often go dry.

There is no Weather Bureau station in Lawrence County. The data in the following table are compiled from the records of the station at Decatur, Ala., on the Tennessee River, about 12 miles east of Lawrence County, and are fairly representative of climatic conditions in the latter county:

Normal monthly, seasonal, and annual temperature and precipitation at Decatur, Morgan County.

Month.	Temperature.			Precipitation.		
	Mean.	Absolute maximum.	Absolute minimum.	Mean.	Total amount for the driest year.	Total amount for the wettest year.
	°F.	°F.	°F.	*Inches.*	*Inches.*	*Inches.*
December	43.1	72	0	3.98	4.50	5.47
January	41.5	77	− 3	5.33	1.90	5.56
February	42.1	77	−12	5.06	1.25	5.31
Winter	42.2	.....	.....	14.37	7.65	16.34
March	54.1	84	4	6.26	7.60	4.17
April	61.9	91	26	4.20	2.78	11.14
May	70.0	99	37	3.75	3.04	2.71
Spring	62.0	.....	.....	14.21	13.42	18.02
June	77.5	106	47	3.36	1.51	2.84
July	79.8	107	56	4.33	5.39	7.50
August	78.6	104	53	3.45	2.91	6.39
Summer	78.6	.....	.....	11.14	9.81	16.73
September	72.7	99	37	2.96	1.60	5.01
October	61.0	93	33	2.41	0.30	0.29
November	50.7	80	15	3.41	1.92	5.60
Fall	61.5	.....	.....	8.78	3.82	10.90
Year	61.1	107	−12	48.50	34.70	61.99

AGRICULTURE.

The interests of Lawrence County are primarily agricultural, and practically all of the better farm land is under cultivation. The areas first selected for agriculture were the "red lands" of the Tennessee Valley. Afterward the Moulton Valley lands were occupied, and still later settlement extended into the mountain sections. By the early

fifties the larger part of the valleys had been cleared of the natural growth of oak, hickory, walnut, pine, poplar, and other trees, and was under cultivation. At the outbreak of the Civil War there were many large and well-improved plantations in the county.

The mountain sections are less extensively cleared than the valleys. A relatively small percentage of the Sand Mountain country is cleared, largely because it is too broken and rough for extensive farming. The eastern part of this section is more generally farmed than the western half, as it includes more plateaulike areas. Little Mountain is less broken and more extensively farmed than Sand Mountain. The forest growth on the mountain lands consists of shortleaf pine, hickory, poplar, and white, black, and red oak. The larger part of the merchantable timber has been removed.

Up to the time of the Civil War the county was in a prosperous condition. Corn was a staple crop, and cotton the money product of the county. At the close of the war agriculture was in a demoralized condition, labor was very scarce, and much of the land was thrown out of cultivation. During the last 30 years, however, especially during the last decade, agricultural progress has been rapid.

Some idea of agricultural conditions in the county may be gained from the census reports of the last few decades. In 1889 there were 1,914 farms, with an average size of 166 acres, embracing 70.8 per cent of the total area of the county. Of the land in farms, 44.4 per cent, or about 74 acres to the farm, was improved. In 1899 there were 3,196 farms, of an average size of 91 acres, embracing 65.1 per cent of the area of the county, and 47 per cent of the land in farms, or about 43 acres per farm, was improved. In 1909, 69.5 per cent of the county was in farms, and 52 per cent of the land in farms, or about 40.5 acres to the farm, was improved. There were 4,003 farms of an average size of 77.8 acres. As the census tabulates each tenancy as a farm, 77.8 acres does not represent the average landholding.

There are many large holdings of from 1,000 to 3,000 acres and some estates of over 20,000 acres. In the Sand Mountain country the holdings range from 3,000 to 10,000 acres, the land being held principally for timber and mineral rights. Land values have steadily increased during the last few years. The mountain lands range in value from $2 or $3 an acre where too rough and broken for agriculture to about $10 where well timbered and capable of being used for farming. The valley lands are valued at $15 to $40 an acre, while the bottom lands not subject to too frequent overflow bring from $40 to $50 an acre where sold alone. The value of all farm property, including live stock, for the county is reported in the 1890 census as $3,379,920, as compared with the total value of $5,447,263 reported in 1910.

Cotton, corn, oats, grasses, sorghum, sugar cane, sweet and Irish potatoes, peas, peanuts, and alfalfa are the principal crops grown, ranking in importance in the order named.

Cotton is the leading crop in point of acreage, and is the money crop of the county. According to the 1910 census it is grown on a total of 51,535 acres. Most of the cotton fields are on the upland soils, and in some localities it is practically the only crop planted. The bottom lands are not often put in cotton, as it does not mature there as a rule before the early frosts. The ground for cotton is broken in the early spring, after the stalks of corn or cotton have been cut or broken down. In some instances the stalks are raked into piles and burned, and this is the better practice where the boll weevil is present or an invasion is threatening. The land is usually plowed shallow with one-horse plows and thrown into ridges. Some farmers plant on the ridges, while others harrow and drag the surface level, after which the ground is laid off and the fertilizer scattered along in front of the drill or planter. The thorough breaking of the land is essential. A few farmers follow the plan of turning the ridge of the previous year into the furrow, and in such case a part of the surface is not plowed. The seed is planted in April or the early part of May with a one-horse cotton planter, which opens the furrow and covers the seed. Cotton is cultivated only deep enough to keep down weeds, a good loose mulch being maintained. Three to five cultivations are given during the first part of the growing season, the one-horse "scooter" or sweep commonly being used. A few two-horse cultivators are used, cultivating one row at a time. The principal varieties of cotton grown are the King, Simpkin's Prolific, Half and Half, Brown No. 1, Russell, and Cummings. The most popular of these are the Half and Half and the Brown No. 1.

Corn ranks second in importance among the crops of the county, being reported on 48,693 acres in 1909. Corn is grown mainly on the river and stream bottom lands. As a rule the land is broken in the spring, though within the last few years some fall plowing and subsoiling have been practiced. The wet stream-bottom lands are plowed and ridged and the corn is planted on the ridges. The ground is usually plowed with one-horse plows to a depth of 3 to 5 and occasionally 6 inches and is worked three or four times with a single-shovel or scooter plow. A few one-horse cultivators also are in use. The upland soils require deeper plowing and subsoiling. Very little of the corn is fertilized. There is not enough corn grown to supply the local demand, and many farmers buy their seed corn. The principal varieties of corn grown are Tennessee Red Cob, Early Ninety Day, and Hasting's Prolific, and other yellow and white dent sorts. Of these the Tennessee Red Cob and certain other white dent varieties are the most popular.

The third crop in importance in the county is oats. A total of 4,580 acres is reported for 1909. Oats are grown mainly for forage and hay. Yields range from 10 to 30 bushels per acre. Oats are sown in both fall and spring, but mainly in the spring. Fall oats usually make heavier yields, but are often damaged by freezing weather. The crop is usually sown broadcast, though it is sometimes drilled in with one-horse drills. Spring oats are commonly sown on the unbroken ground and covered by shallow plowing, and fall oats on better prepared land.

The hay crop of the county is relatively unimportant. Johnson grass, crab grass, redtop, timothy, alfalfa, and red and bur clover are grown for forage and hay. The 1910 census reports 896 acres in tame or cultivated grasses; 1,227 acres in wild, salt, or prairie grasses; 917 acres in grains cut green, and 702 acres in coarse forage, producing in all only about 5,000 tons of hay. Some timothy hay and alfalfa is shipped into the county. Corn leaves, pulled from the stalks when green and tied into bundles, are used for forage. Some of the corn is cut and placed in shocks after the ears have matured and the fodder used for forage. Good results are obtained with alfalfa and bur and crimson clover in the Moulton and Tennessee Valleys on the "red lands" and brown soils of the Decatur and Hagerstown series. So far the growing of alfalfa has been in the nature of an experiment, but the results obtained have been encouraging. The second year four or five cuttings are obtained, amounting to 4 to 5 tons per acre. This legume does not do well on the gray valley or mountain soils.

Sorghum for sirup, sweet and Irish potatoes, and peanuts are crops of minor importance. Sweet potatoes do well on the lighter, sandier soils, producing 75 to 100 bushels per acre. Vegetables and truck crops of all kinds are successfully grown. Under favorable economic conditions these crops could be produced commercially on a large scale. Most farmers grow enough vegetables to supply home needs, with occasionally some sweet potatoes for market.

While fruit is not grown on a commercial scale, orchards of varying size are found throughout the county, and there are some trees on nearly every farm. Apples, peaches, plums, grapes, blackberries, raspberries, and strawberries are grown, and under favorable conditions the yields are heavy. In the valley sections late spring frosts often injure the fruit, especially the peaches. Orchards in the mountain sections generally escape injury from frosts. The appearance of peach trees on the Dekalb stony loam and the Hanceville soils indicates that these types are well adapted to that fruit. Wild plums, grapes, and blackberries are common in the forests. Very little attention is given to the pruning and spraying of fruit trees, and they are often killed by insect pests and fungous diseases.

The work stock of the county consists of mules and horses, the former being more generally used. Formerly the larger part of these were shipped in from Tennessee and from St. Louis, but within the last few years good sires have been introduced and the farmers are raising a high grade of stock. Very few beef cattle are raised. Some cattle of mixed breed are grazed during the summer and fall, being marketed in the late fall. Before the passing of the stock laws free grazing could be had in the mountainous sections, but at present there is no free range and there is a smaller number of cattle in the county than a few years ago, although the stock is of better quality. A few sheep and goats are raised. The average farmer does not raise enough hogs to supply pork for home use. Most farmers keep one, two, or three cows, usually Jerseys, for butter and milk. As a rule poultry is raised only for home use.

Farm labor is scarce, and the greater part of the work is done by the farmers and their families. The laborers are mainly negroes, who receive 50 cents to $1 by the day and $10 to $20 a month, with board. From 50 cents to $1 is paid for every 100 pounds of seed cotton picked.

Much of the farm land in the Tennessee Valley is rented by the large landholders to negroes, who constitute the greater part of the population of the valley section. The owners give very little attention to the management of the farms, and the negro tenants usually cultivate small patches until the soil is almost exhausted and then take up new fields. Thus there are many "worn-out" or abandoned fields. Cash rentals range from $2 to $5 an acre. The larger part of the land, however, is rented on a share basis, several methods being followed. Under the most popular arrangement the landowner furnishes only the land and buildings, and receives one-third of the corn and one-fourth of the lint cotton. In some cases the landowner furnishes the land, tools, work stock, buildings, and one-half of the fertilizer, and receives one-half of the crops.

Some of the Moulton Valley lands are farmed by tenants, but the greater part of these lands are held in small farms operated by the owners. Very little land in the mountain sections is leased. According to the census, 53.2 per cent of the farms of the county were operated by tenants in 1879, and 58.4 per cent in 1909. Clothing, food, and supplies are usually advanced to the tenant by the landholder or by merchants and a lien on the crops taken as security.

The use of low-grade fertilizer, mainly in the proportion of 10–2–2 or 10–4–4, is general throughout the county. An expenditure of $59,012 for fertilizers is reported in the 1910 census. The larger part of the fertilizer is used in growing cotton. The usual applications vary from 100 to 250 pounds an acre, while on some of the better farms where the land is plowed deep and subsoiled and is well sup-

plied with organic matter 400 to 600 pounds per acre are used, and in such cases yields of one bale of cotton per acre are produced in favorable seasons. Commercial fertilizers prove most effective where used on soils well supplied with organic matter. The organic matter is incorporated by plowing under such green-manuring crops as clover, peas, beans, vetch, and rye. Barnyard manures are commonly used, but the supply is inadequate, as very little stock is kept by the average farmer.

In general all the soils are in need of lime. The gray Dekalb soils of the mountain sections are deficient in humus, as well as lime, as are also the Colbert soils of the valley regions.

No general system of crop rotation is practiced, although much interest is being manifested along such lines. It is not uncommon for farmers to plant the same field to cotton or corn for years in succession. Sometimes these two crops are alternated every three to five years. Many farmers sow cowpeas between the corn rows after the last plowing. Where systematic crop rotation is practiced the soils are improved and yields are materially increased within a few years. A good rotation consists of corn the first year, with the rows wide apart, followed by cowpeas, soy beans, vetch, or crimson clover sowed between the rows at the last cultivation; the second year cotton, with some legume sown between the rows, or a cover crop of oats, rye, etc., in the fall to be cut in June, and the field planted to peas or some other forage crop, then to corn the following year.

Very little attention is given the preparation of the seed bed. Most of the plowing ranges in depth from 3 to 6 inches. Best results are obtained where the depth is not less than 8 or more than 15 inches. This is attained gradually by plowing deeper each year and subsoiling, without turning much subsoil to the surface at one plowing. The deeper plowing affords a good root zone for growing crops, increases the water-holding capacity of the soil, and permits it to warm up earlier in the spring.

Erosion is active on the knolls and hillsides of the Decatur soils. Many of these knolls or "gall spots" are allowed to remain out of cultivation, and some are devoid of vegetation. The washing of such areas is largely checked by planting them to cover crops, one of the best for this region being grass.

The greater part of the soils of the county are well drained. There are, however, many low-lying areas that are wet and "cold," and in need of ditch or tile drainage.

SOILS.

The soils of Lawrence County are derived largely from the underlying geologic formations.[1] Geological investigations indicate that

[1] The geology in this report is based upon, "The Valley Regions of Alabama, Part 1, The Tennessee Valley Region, Geol. Survey of Ala., 1896."

the Cumberland Plateau ages ago extended unbroken over the larger part of the county, with an altitude several hundred feet above the existing highest points on Little and Sand Mountains. Active erosion and decomposition extending over a long period of time have reduced the original plateau and resulted in the present surface configuration. In some instances the original plateau level has been lowered 500 to 600 feet.

The geologic formations occurring in the county consist of the lower sub-Carboniferous, upper sub-Carboniferous, Carboniferous, Cretaceous, and Tertiary, from oldest to youngest in the order named. Of these only the lower and upper sub-Carboniferous are exposed as rock outcrop.

The rocks consist of limestone, sandstone, shale, chert, and conglomerate. Some coal is found in the Carboniferous formation near the top of the north-facing escarpment of Sand Mountain, in the vicinity of Penitentiary Gap, and a few "pockets" are encountered elsewhere in this section. The valley formations consist almost entirely of limestone, while the mountain country consists of sandstone and shale. The formations are sedimentary, having been laid down in an ancient sea, consolidated, and later uplifted. The strata of rock beds have not been subjected to any great change through heat and pressure by being folded or faulted, and remain much as they were laid down, in an almost horizontal position with a slight dip to the south and southeast. Where subjected to the agencies of weathering these rocks have been broken down and decomposed, giving rise to the various soils of the county.

Four of the general soil provinces are represented in Lawrence County—the Appalachian, comprising Little and Sand Mountains (an extension of the Cumberland Plateau), the Limestone Valleys and Uplands, including the Tennessee and Moulton Valleys, the River Flood Plains, and the Coastal Plain.

The soils may be classed in two general groups, residual and alluvial, with colluvial material in some soil types. The residual soils are those derived from the disintegration and decomposition of the underlying rocks in place, while the alluvial soils consist of materials washed from the uplands and deposited along the streams in times of overflow.

The residual soils are classed with the Decatur, Ruston, Hanceville, Hagerstown, Dekalb, Clarksville, Hollywood, and Colbert series.

The Carboniferous strata are represented by the Lauderdale or Keokuk chert, the Tuscumbia or St. Louis limestone, the Hartselle sandstone formation, including the Bangor limestone, and the Coal Measures. The Lauderdale or Keokuk group consists of chert or cherty limestone, interstratified with layers of hard siliceous lime-

stone. These layers weather slowly and as the limestone dissolves it leaves the sharp, angular chert scattered over the surface and throughout the soil mass. This formation is best developed in the northwestern part of the county, in the Tennessee Valley, and gives rise to the Clarksville silt loam and Hagerstown stony loam.

The Tuscumbia, or St. Louis limestone, is gray to blue, with some interstratified chert embedded in the limestone, and occurring, although rarely, in thin layers. As a whole the resultant soils are almost free from stone, though in some small areas chert is encountered. This is much softer than the Lauderdale, and is less resistant to weathering, so that the region has a more rolling topography than that in which the Lauderdale occurs. There are many "sinks" through which the drainage water finds its way into subterranean channels, which are the principal form of drainage in these areas. The weathering of the Tuscumbia formation has given rise to the Decatur soils, locally known as the "red lands." The fine sandy loam type of this series, and the clay loam member to some extent, have been influenced by a sandstone formation, which in flat or poorly drained areas has given rise to the Colbert series. The Hagerstown loam and fine sandy loam also owe their origin to the Tuscumbia limestone, which is more or less associated with sandstone. There are some flat or "prairie" regions in which the rock either appears at the surface or lies 6 inches to 3 feet below. In such limestone areas the Hollywood soil series is encountered. In some cases the valley soils are influenced by material from the Hartselle sandstone formation.

The Bangor limestone, or "mountain limestone," is a massive gray to blue limestone occurring along the north-facing slopes of Little and Sand Mountains. These areas are very rough and broken, and are mapped as Rough stony land. They consist of rock ledges and outcropping rocks too steep and broken for agricultural purposes, locally known as "glade" areas.

The Hartselle sandstone formation includes the rocks of the Little Mountain country, which consist of gray to red and mottled sandstones, with associated arenaceous shales and calcareous sandstones. The Coal Measures consist of a rather massive gray to red and mottled sandstone with associated arenaceous and argillaceous shales. This formation underlies the Sand Mountain country, extending over an area of nearly 200 square miles. These formations give rise to the Dekalb and Hanceville soils.

The Tertiary formation in this county is of very small extent, being found only in the southwestern section, excepting a few remnants in the valleys, where it does not influence the soils enough to be noted on the map. The material consists of highly ferruginous

sandstone conglomerates, red and gray sands, and quartz gravel. It caps the higher ridges and upper slopes of the higher hills, varying in thickness from 5 to 30 feet. This formation gives rise to the Ruston fine sandy loam.

The alluvial soils of the county occupy first bottoms and are subject to occasional overflow. These soils are classed with the Huntington, Abernathy, and Holly series.

In general the soils of Lawrence County are very intimately associated with the underlying geologic formations, although there has been some mixing of the materials by erosion. The soil types of the Moulton and Tennessee Valleys are quite varied and mixed, and frequently there are several kinds of soil in the same field. The soils of the mountain sections are more regular and continuous.

Thirty soil types, including Rough stony land, are recognized in Lawrence County. These represent 11 series. The following table gives the name and actual and relative extent of each soil type mapped:

Areas of different soils.

Soil.	Acres.	Per cent.	Soil.	Acres.	Per cent.
Decatur clay loam	70,208	15.7	Clarksville silt loam	6,912	1.6
Dekalb silt loam	57,728	12.9	Colbert clay	6,016	1.3
Dekalb stony loam	50,432	11.3	Ruston fine sandy loam	4,928	1.1
Hagerstown fine sandy loam	31,296	7.0	Huntington fine sand	4,800	1.1
Hanceville fine sandy loam	26,944	6.0	Dekalb loam	1,984	.5
Colbert silt loam	25,536	5.9	Holly fine sandy loam	1,920	.4
Hardpan phase	1,088		Hollywood clay	1,792	.4
Dekalb fine sandy loam	26,496	5.9	Decatur silty clay loam	1,728	.4
Hagerstown loam	24,256	5.4	Hagerstown stony loam	1,408	.3
Colbert fine sandy loam	19,456	5.3	Huntington clay	1,408	.3
Shallow phase	4,480		Abernathy silty clay loam	1,216	.3
Huntington fine sandy loam	18,048	4.0	Decatur clay	1,152	.3
Hanceville stony loam	14,912	3.3	Holly silt loam	1,088	.2
Decatur fine sandy loam	11,072	2.5	Decatur gravelly loam	1,024	.2
Hollywood loam	10,752	2.4	Colbert silty clay loam	832	.2
Huntington loam	8,960	2.0			
Rough stony land	8,128	1.8	Total	448,000	.....

Decatur Series.

The soils of the Decatur series are characteristically reddish brown to deep red, and the subsoils have an intense red or blood-red color. These soils are derived mainly from pure limestone, although some areas show traces of chert. They occur in nearly level to gently rolling valley areas, and to some extent in uplands. In Lawrence County the Decatur series comprises five types—the gravelly loam, fine sandy loam, silty clay loam, clay loam, and clay.

DECATUR GRAVELLY LOAM.

The surface soil of the Decatur gravelly loam consists of a grayish-brown to reddish-brown fine sandy loam, and is 5 to 8 inches in depth. The subsoil is a reddish-brown to red clay, which contains some fine sand, and becomes more compact and slightly plastic with depth. Scattered over the surface and throughout the soil section are varying quantities of sharp angular chert and sandstone fragments, which interfere somewhat with cultivation.

The Decatur gravelly loam occupies the rather rough lower slopes of the north-facing escarpment of Sand Mountain. It is not extensive and is found in rather small areas. The topography is rough and broken to gently rolling. Drainage is thorough and in places excessive, the surface soil having been removed in small areas on the more broken slopes. The stones scattered over the surface help to conserve moisture in dry seasons, so that the soil does not suffer from drought as do some of the heavier soils of the valley region.

The forest growth on the Decatur gravelly loam consists of shortleaf pine, white, red, and blackjack oaks, hickory, dogwood, persimmon, chestnut, poplar, and various shrubs. The larger part of the merchantable timber has been removed, and some of the type has been cleared and is under cultivation. Good results are obtained with cotton, which yields one-third to three-fourths bale per acre. Corn yields 10 to 25 bushels per acre. Fruits, including peaches, plums, and berries, and truck crops do well, although not extensively grown, owing to the lack of market facilities. Peaches grown on this soil have a good flavor and color. Very little attention is given to crop rotation, cotton or corn being grown year after year on the same land. Commercial fertilizers analyzing 10–2–2 in applications of 100 to 200 pounds per acre are used with cotton. Very shallow plowing is practiced, seldom exceeding 4 to 6 inches.

Land of this type is usually sold in connection with associated valley and mountain soils. Its value ranges from $6 to $15 an acre, depending on improvements, condition of the soil, and location with respect to markets.

DECATUR FINE SANDY LOAM.

The surface soil of the Decatur fine sandy loam consists of a reddish-brown to red, mellow fine sandy loam, 6 to 10 inches deep. The subsoil is a red to deep-red, moderately friable fine sandy clay. The material is heavy and plastic in the lower part of the 3-foot section. Scattered throughout the subsoil are varying quantities of black and brown ferruginous concretions, which are largely responsible for the red color. The soil is deficient in organic matter and has a low water-holding capacity. It is usually free from stones, though some chert fragments may be present. The rocks lie several

feet below the surface and only occasionally outcrop. Some small areas of the Decatur clay loam and clay are included with this type. Such areas represent eroded spots where the surface soil of fine sandy loam has been removed, leaving the red clay subsoil exposed.

This is strictly a valley soil, being found only in the Moulton and Tennessee Valleys. There are no large continuous bodies of it, but it is well scattered over the valley sections. The topography is gently rolling to undulating, consisting of slight knolls or ridges. The soil is well drained and subject to erosion when not properly handled, the knolls reaching rather high levels as compared with the surrounding country.

This is an easy soil to cultivate and nearly all of it is farmed. It was originally forested, and at present supports a few groves of shortleaf pine, hickory, and oak. Cotton, corn, cowpeas, soy beans, and sorghum are the principal crops. Potatoes, tomatoes, melons, and many other vegetables, as well as fruits, including peaches, apples, and pears, do well on this soil, although pear and apple trees are subject to injury from blight. Cotton produces one-third to three-fourths bale per acre. Corn produces 15 to 35 bushels and oats 25 to 40 bushels per acre.

Like the other Decatur soils this type is in need of lime. It is also in need of organic matter, which is effectively supplied by growing leguminous crops. Owing to its porous nature the type absorbs rainfall readily, but it is not retentive of moisture. Little attention is given to crop rotation on this type. Cotton is grown on the same land year after year, occasionally being alternated with corn. Cotton is usually fertilized with 100 to 200 pounds per acre of a mixture analyzing 10–2–2 or 10–4–4, applied at planting time. An 8–3–3 mixture has given good results.

This land is sold, mainly in conjunction with other land of the Decatur, Colbert, and Hagerstown series, for $15 to $35 an acre.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Decatur fine sandy loam:

Mechanical analyses of Decatur fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
414625	Soil	0.4	2.5	9.9	26.4	5.6	42.7	12.1
414626	Subsoil	.6	1.6	6.4	24.4	6 0	32.6	28.4

DECATUR SILTY CLAY LOAM.

The soil of the Decatur silty clay loam consists of a dark reddish brown to chocolate-red silty clay loam, 6 to 15 inches in depth. The subsoil is a dark-red clay, containing a few black and brown oxide-

of-iron concretions. The soil is mellow and porous and contains a good supply of organic matter, especially in the lower sinks or depressions. In places it is slightly acid. The upper subsoil is open and friable, while the lower part is more compact and heavy to plastic. This type grades abruptly into the surrounding higher lying types. It becomes shallower and lighter in color as the higher levels are approached.

The Decatur silty clay loam is inextensive. It occupies slight sinks or depressions in the valley regions, and the surface is level or nearly level. The soil is partly colluvial, being influenced by slope wash from the surrounding higher soils. The subsoil material is residual and is derived from the underlying rock formation. Some of the sinks and depressions are wet and poorly drained, particularly during seasons of heavy rainfall, but in dry years they are the most productive areas in the county. In many cases there are no natural drainage outlets and water stands on the surface for some time after heavy rains.

The larger part of the Decatur silty clay loam is under cultivation, though a few small areas are forested with white oak, red oak, and black oak, hickory, walnut, and poplar. It is considered one of the most productive soils in the county for all the general farm crops. Cotton, corn, oats, sorghum, cowpeas, and millet are the principal crops grown. Bermuda grass, crab grass, redtop, and clovers also are grown with good results. Cotton produces three-fourths to one bale per acre when properly handled, corn 30 to 50 bushels, oats 35 to 50 bushels, and cowpeas 1 to 2 tons of hay per acre. Sorghum is grown for forage and for sirup, producing 100 to 125 gallons of sirup per acre. In the wetter seasons the yield of all crops is uncertain. Crops make a rank growth of stalks on this soil and produce better yields as a whole than on the surrounding types.

No systematic crop rotation is followed, and it is a common practice for cotton and corn to be grown year after year on the same fields. Occasionally these two crops are alternated. Some fields are planted to winter oats or to cowpeas and are very much benefited by such practice.

Land of this type is held at higher prices than the surrounding areas, being valued at $30 to $50 an acre.

DECATUR CLAY LOAM.

The soil of the Decatur clay loam consists of a red to reddish-brown, friable clay loam. It has an average depth of about 5 inches. The subsoil is more uniform in color and texture. It consists of a red to deep-red clay, somewhat plastic when wet and moderately brittle when dry. There is very little change within the 3-foot section, except that the material in the lower part is more compact.

Throughout the subsoil there are varying quantities of small black and brown ferruginous concretions, which are largely responsible for the red color of the type. Over much of the type there is a surface mantle 1 to 4 inches deep of a red fine sandy loam. Over these areas deep plowing brings to the surface sufficient clay to form a soil of clay loam texture. The surface is usually free from rock fragments, though in some places chert is encountered. The underlying rock lies at a depth of several feet, as a rule, and there are no extensive areas in which it outcrops at the surface. Eroded areas of Decatur clay and silty clay loam, too small to separate on the map, are included with this type.

This type is strictly a valley soil, and is extensively developed in the Tennessee and Moulton Valleys. In the Moulton Valley bodies there are included some small areas of Decatur loam.

The topography of the Decatur clay loam is nearly level to gently undulating, with a few fairly conspicuous knolls. As a whole, the areas are well drained. The drainage is effected largely by means of subterranean channels, especially in the Tennessee Valley, where surface drainage is lacking. There are some small basins or sinks throughout the type, in which artificial drainage is needed. Some of the steeper slopes require terracing to prevent erosion.

The Decatur clay loam is one of the heaviest soils of the county and is naturally difficult to handle, especially during wet seasons. It is hard and tough when dry and is sticky and forms clods if plowed when wet. Owing to the absence of organic matter, the moisture-holding capacity of this soil is very low.

Nearly all this type is under cultivation, and improved farm machinery can be used. A few small areas of oak, hickory, walnut, poplar, and shortleaf pine are found, and there are some small eroded or "gall" spots which are allowed to grow up in sassafras, field pine, wild plum, and briers. The soil is adapted to intensive and diversified farming. The crops grown consist of cotton, corn, oats, grasses, sorghum, cowpeas, sweet potatoes, Irish potatoes, peanuts, garden truck, fruit, clovers, and alfalfa. Cotton yields one-third to one bale per acre, the average being one-half bale, corn 15 to 50 bushels, and oats 30 to 50 bushels. While alfalfa has but recently been introduced, good results are obtained in small patches on the "red lands," as this soil is called. Apples, peaches, plums, grapes, strawberries, and raspberries do well, although peaches are more or less subject to injury by late spring frosts.

Very little attention is given to crop rotation on this type, cotton or corn being grown for several successive years on the same field. Corn is seldom fertilized. Cotton is usually fertilized with 100 to 500 pounds per acre of a 10–2–2 or 10–4–4 mixture at the time of planting.

Manure also is used, but at present only small quantities are available. The type is in need of lime.

Very little of this land is on the market. It sells for $15 to $35 an acre, depending on improvements and location with respect to markets.

DECATUR CLAY.

The soil of the Decatur clay consists of a red clay to clay loam and has a depth of about 4 to 6 inches. The subsoil is a uniform, tough, compact, slightly plastic, intense-red clay. Noticeable throughout the subsoil are small black, brown, and red iron concretions about the size of birdseed. Oxidation has proceeded to an advanced degree in this type, and this, together with the large amount of iron contained in the original rock, is responsible for the deep-red color. The underlying rocks are usually encountered at depths of 10 to 20 feet. A few rock fragments are scattered over the surface in places. Some areas of Decatur clay loam and silty clay loam too small to be separated on a map of the scale used are included with this type.

This is strictly a valley soil, occurring in both the Moulton and Tennessee Valleys. It is not so extensively developed as the clay loam type.

The Decatur clay occupies knolls or ridges slightly elevated above the clay loam type and the topography is gently rolling to undulating. Drainage is thorough and in some instances excessive. In fact, the type represents areas of the clay loam of this series from which the original surface covering has been removed by erosion, leaving the dark-red clay exposed.

Areas of this type are locally called "red lands." The soil is much heavier and more difficult to handle than that of the clay loam. When dry it is very difficult to plow and when wet it is sticky and forms clods. This land is less productive than the Decatur clay loam. It is deficient in lime and organic matter and has a low water-holding capacity.

The original forest growth consisted of shortleaf pine, oak, persimmon, and walnut. At present nearly all of the type is cleared and under cultivation. When properly managed the soil is well adapted to farming. Corn and grasses do best on it. Cotton also does well. Ordinarily corn produces 20 to 50 bushels and cotton one-third to three-fourths bale per acre.

A commercial fertilizer mixture analyzing 10–2–2 is used with cotton. Corn is rarely fertilized. All available manure is applied. Very little attention is given to the rotation of crops on this type.

Land of this type is highly prized and very little of it is on the market. Its value is estimated at $15 to $35 an acre.

Ruston Series.

The soils of the Ruston series are gray to grayish brown and are underlain by reddish-yellow to yellowish-red or dull-red, moderately friable subsoils, prevailingly of sandy clay. The series holds an intermediate place between the Orangeburg and Norfolk soils in the color of its subsoils, and a similar place between the Orangeburg and Norfolk on the one side and between the Orangeburg and Susquehanna on the other in point of subsoil structure. Occasionally the lower subsoils are mottled with gray and shades of yellow. The soils are closely associated with the Orangeburg and Susquehanna and are probably derived from practically the same formation as the Orangeburg. Only the fine sandy loam type is mapped in Lawrence County.

Ruston fine sandy loam.

The surface soil of the Ruston fine sandy loam consists of a light-gray loamy fine sand, grading at about 2 to 6 inches into a yellowish-gray or pale-yellow loamy fine sand. The subsoil of the typical areas is encountered at 10 to 20 inches and is a reddish-yellow to brownish-yellow or reddish, friable fine sandy clay extending to a depth of 3 feet or more. The type includes small bodies of Ruston fine sand so intricately associated with this soil that they can not be separated on the soil map. Small rounded quartz gravel frequently is encountered on the surface and occasionally is distributed throughout both the soil and the subsoil. In some places there is an abundance of brown ferruginous sandstone fragments, in which quartz pebbles are embedded. They usually occur as thin, platy sheets. Locally the sandy clay subsoil grades into an Arkose sandstone at a depth of about 3 feet. This formation is friable and soft and is easily penetrated with the soil auger.

The type is confined to the extreme southwestern corner of the county and is inextensively developed. It occurs mainly along the Franklin County line, but a few areas are encountered along the Winston County line. The areas occupy ridge crests, the upper slopes of ridges, and some knolls. The topography is gently rolling to rolling, and surface drainage is excellent.

Along the Franklin County line a comparatively large part of this type is under cultivation, while the more easterly bodies of it are generally forested. The forest growth consists of a mixture of red, white, post, and chestnut oaks, hickory, poplar, and shortleaf pine. The hardwoods predominate near the contact with the Dekalb and Hanceville soils, while the pine prevails along the Franklin County line in the more typical areas.

Corn and cotton are the principal crops grown and the yields of these depend largely upon the methods of cultivation and the quantity of fertilizer used. Cotton produces one-fourth to three-fourths

bale and corn 10 to 20 bushels per acre. Some cowpeas are grown and produce fair yields. Sweet potatoes, garden vegetables, and peaches are grown successfully. Truck crops do well, but the remoteness of the type from markets and lines of transportation precludes the profitable production of truck. The soil is decidedly deficient in organic matter.

Lands of this type sell for $5 to $10 an acre. These values are comparatively low for a type of this productiveness.

Hanceville Series.

The Hanceville series has light-brown to reddish-brown surface soils and red, moderately friable subsoils. The topography ranges from rolling to steeply rolling. The soils are derived from sandstones and shales, which in places appear to be higher in iron-bearing minerals than the rocks giving rise to the Dekalb soils. In Lawrence County the series comprises the stony loam and fine sandy loam types.

HANCEVILLE STONY LOAM.

The surface soil of the Hanceville stony loam consists of a grayish-brown to reddish-brown loam to fine sandy loam, from 8 to 10 inches deep. The subsoil is a yellowish to red fine sandy clay of friable structure. Frequently the red fine sandy clay lies directly below the surface layer of grayish or brownish material. Sandstone fragments of varying sizes are scattered over the surface and throughout the soil and subsoil. Outcrops of varicolored sandstone are frequently seen on the rough broken slopes.

The Hanceville stony loam has quite an extensive development in the northern Sand Mountain region, with a few small patches southeast of Hillsboro on northern Little Mountain. It occurs on the north-facing slope of Sand Mountain in a broken strip extending across the county, the largest bodies being found in the southeastern corner of the county.

This type occupies the steeper slopes of the mountain escarpments and side valleys heading in the mountains. The numerous streams have washed out deep ravines and V-shaped valleys, making the surface very rough and broken. The type as a whole is excessively drained.

Practically all of this type is forested with its native growth of oak, hickory, poplar, gum, and shortleaf pine, with an undergrowth of shrubs. Lespedeza and other grasses do well on the more sparsely forested areas.

Land of this type is not highly prized, owing to its stony character and rough topography, and is valued principally for the timber growth. Prices range from $2 to $5 an acre.

HANCEVILLE FINE SANDY LOAM.

The surface soil of the Hanceville fine sandy loam consists of a grayish to reddish fine sandy loam to loamy fine sand, and has a depth of 8 to 12 inches. The subsoil is a red to reddish-brown, friable fine sandy clay or clay. The substratum, consisting of variegated sandstone, including red, pink, brownish, gray, and yellow, lies only a few feet below the surface and frequent outcrops are seen in road cuts and on the more broken slopes. In places a few sandstone fragments occur on the surface.

On some of the steeper slopes and narrower ridges the disintegrated sandstone is frequently encountered in the lower portion of the 3-foot section, and here the immediately overlying subsoil is commonly a fine sandy loam or a very crumbly fine sandy clay.

The type has quite an extensive development in the county. It is found principally on the north-facing slope of Little Mountain, and to a lesser extent on the north slope of Sand Mountain. It occurs in rather broad, extended strips on Little Mountain, reaching across the county. The largest bodies are at Wolff Springs and Bethel Church. Many isolated bodies are scattered over the south slopes of Little Mountain and Sand Mountain.

The type mainly occupies mountain slopes, knolls, and crests of ridges on the higher elevations. It is dissected by a large number of streams, some of which have cut deep ravines, giving a broken and rough surface in many places. Natural surface drainage is well established over all areas of the type, and a part of it is excessively drained.

Most of this type is forested to white, red, black, and chestnut oak, shortleaf pine, hickory, poplar, gum, persimmon, and sycamore, with an undergrowth of shrubs. A considerable acreage of it in the vicinity of Wolff Springs and a few patches elsewhere are under cultivation.

The Hanceville fine sandy loam is well drained, warms up early in the spring, and is a very easy soil to cultivate. Cotton, corn, sweet potatoes, rye, and garden vegetables do well on smooth land. Cotton yields one-third to three-fourths bale per acre and corn 20 to 40 bushels. Some sorghum and peas are sown for forage and produce good yields. Sweet potatoes can be grown successfully on a commercial scale.

This soil is inclined to be droughty, and the best yields are usually obtained during seasons of moderate to heavy rainfall. Although it is considered slightly more productive than the associated Dekalb soils, it is deficient in organic matter. Land of this type sells for $10 to $20 an acre.

The results of mechanical analyses of samples of the soil and subsoil of this type are given in the following table:

Mechanical analyses of Hanceville fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
414643	Soil	0.2	0.4	5.3	48.1	9.2	22.0	14.7
414644	Subsoil	.0	.3	1.3	36.4	9.4	14.4	38.2

Hagerstown Series.

The soils of the Hagerstown series are prevailingly brown in color, with light-brown to reddish-brown subsoils. In some areas the subsoil is red or dull red, but the red color is never so pronounced as in the Decatur soils. The Hagerstown soils are typically developed in the limestone valleys of the Appalachian Mountain region and in the central basins of Kentucky and Tennessee, with outlying areas in the adjoining Piedmont Plateau region. Fragments of limestone and outcrops are of common occurrence. The topography is undulating to gently rolling, and well suited to cultivation. In Lawrence County the stony loam, fine sandy loam, and loam types are represented.

HAGERSTOWN STONY LOAM.

The surface soil of the Hagerstown stony loam to a depth of 6 to 8 inches is a brown to reddish-brown silt loam to loam, containing some fine sand. The subsoil is a brown to dull-red friable clay, containing a few black and brown oxide-of-iron concretions. With increased depth the structure becomes compact and heavy. Many rough siliceous chert fragments are scattered over the surface and throughout the soil section. These are frequently present in such large quantities that it is impossible to bore to a depth of 3 feet.

A phase of this type along the lower slopes of Little and Sand Mountains consists of a brown loam, which passes into a reddish-brown to red friable clay. Sandstone fragments from the adjoining mountain slopes are common. The chert fragments in the phase are present in sufficient quantities to give the soil a stony character.

The Hagerstown stony loam soil occurs as small areas scattered over the Moulton and Tennessee Valleys. It occupies slight knolls somewhat higher than the surrounding soils of the same series, and occurs also along the steeper and more broken slopes, associated with limestone outcrop, between the Tennessee River and the valley land above. As a whole drainage is excessive. Erosion has removed the surface soil in many places, leaving the stone scattered over the surface. The soil has a rather open, loose structure and the stone

content tends to promote aeration and to retard excessive drainage. This soil does not bake and clod when broken while wet, as do the Hagerstown loam, Decatur clay, and Decatur clay loam.

Uncultivated areas support a growth of scrub and blackjack oaks, with some white and black oak, hickory, walnut, and shortleaf pine. The larger part of the Hagerstown stony loam is farmed to corn and cotton. Cotton produces one-third to one-half bale and corn 15 to 25 bushels per acre. No crop rotation is practiced. On much of this type grasses, such as lespedeza and Bermuda grass, for pasturage do better than any other crop. Fruits, including peaches and apples, do well except in seasons of late spring frosts. The soil is less desirable for general farming than the Hagerstown loam. Crops do best on the stony loam during seasons of heavy rainfall, as the rock content promotes the burning of the plants during long-continued dry periods.

Land of this type is valued at $15 to $25 an acre, depending on improvements and location with respect to markets.

HAGERSTOWN FINE SANDY LOAM.

The surface soil of the Hagerstown fine sandy loam is a light-brown to reddish-brown fine sandy loam of a mellow structure. It has an average depth of about 7 inches, and passes abruptly into a light-brown to reddish-brown friable fine sandy clay, or clay, which usually extends to a depth of several feet. The lower subsoil often becomes more compact and redder with increased depth. Throughout the soil and subsoil, especially the latter, small rounded iron pebbles are disseminated.

The type occupies some rather large continuous bodies in the valley sections, with other small scattered areas.

The topography is rolling to gently undulating, resembling that of the Decatur soils. The type occurs mainly along the slopes of Little and Sand Mountains, and much of the surface soil has been carried down from these sections or represents the remains of the Cumberland Plateau which extended over the present valley sections. There are other areas occurring along drainage courses at a lower elevation than the Decatur soils, and some of the surface soil resembles transported material, but the type is not subject to overflow. The type also occupies low hills and ridges in the valley sections. It is well drained. There are some areas on the steeper slopes where erosion has removed the surface soil, leaving the reddish-brown subsoil exposed.

The larger part of this type is cultivated. Some small areas support a forest growth consisting mainly of pine, with some white, black, and red oak, hickory, and poplar.

This type is well suited to the production of all farm crops. Cotton and corn lead. Oats, sorghum, cowpeas, potatoes, and clover are grown. Melons, tomatoes, potatoes, and other truck crops make good yields, and apples and peaches do well, but are sometimes killed by late spring frosts. Cotton yields over one-half bale per acre, corn 18 to 35 bushels, oats 20 to 40 bushels, cowpea hay 1 to 2 tons, and sorghum 2 to 2½ tons. Some clover is grown, and does fairly well. Cotton is fertilized with the usual mixture of 10–2–2. Some barnyard manure is used with potatoes, which yield well. Other crops are not fertilized.

This soil is easily cultivated. It warms up early in the spring, so that crops get a good start and mature earlier than on the heavier surrounding soils of the Decatur series. On most of the Hagerstown fine sandy loam cotton is grown year after year, being occasionally alternated with corn. Owing largely to this practice, the soil is deficient in organic matter and has a relatively low water-holding capacity. Lands of this type are valued at $25 to $40 an acre.

HAGERSTOWN LOAM.

The soil of the Hagerstown loam, to a depth of 6 to 8 inches, consists of a brown to reddish-brown loam, of a mellow structure. The subsoil is a reddish-brown to dull-red, moderately friable clay, usually extending to depths greater than 3 feet. Varying quantities of small, rounded, soft, black oxide-of-iron concretions are scattered throughout the subsoil, and occasionally appear in the surface soil. The soil has a looser and more porous structure than the Decatur types, but is heavy enough to puddle when wet and bake on drying. As a whole it is free from stones, though there are some limestone outcrops, and limestone fragments are often scattered over the surface. Throughout the extent of the Hagerstown loam, and particularly where the topography is more rolling as the mountain slopes are approached, the soil has in places been removed by surface wash, and the underlying clay is exposed. In such areas the surface soil remaining is very similar to the typical soil, but the subsoil is often a heavy fine sandy clay of a yellowish-brown color. Such areas are too small to be mapped separately.

Areas of this soil are scattered over both the Tennessee and Moulton Valleys, the most extensive lying in the former in the vicinity of Town Creek and in the extreme northern part not far from the Tennessee River.

The topography is flat to gently rolling. The type occupies levels slightly higher than the Colbert series and lower than the Dekalb. It is well drained and does not wash badly, except in the higher areas, with approach to the mountain sections, and on the knolls, where

"gall spots" are of frequent occurrence. There are a few areas in which artificial drainage is needed.

The larger part of the Hagerstown loam is under cultivation. It is considered one of the best soils of the county. The original forest growth consisted of oak, hickory, walnut, poplar, and shortleaf pine. There are now a few small forested areas which contain some good merchantable timber. There is very little waste land included in the type.

The soil is naturally well adapted to farming. It is easily worked and responds readily to good treatment. The principal crops are cotton and corn, with oats, peas, millet, and sorghum as the minor crops. Cotton yields one-third to three-fourths bale, corn 20 to 45 bushels, oats 20 to 45 bushels, and hay 1 to 2 tons per acre. Cotton is fertilized with 125 to 200 pounds of a 10–2–2 mixture. Corn is seldom fertilized. Little attention is given to the rotation of crops. Cotton and corn are alternated every three to five years, and occasionally peas or oats are grown for one year. Lespedeza (Japan clover) thrives on this type and affords good pasturage. Clover grows well. The soil is fairly well supplied with organic matter.

Farms on the Hagerstown loam sell for $15 to $35 an acre, depending upon the condition of the land, improvements, and nearness to markets.

Dekalb Series.

The surface soils of the Dekalb series are gray to brown, and the subsoils commonly some shade of yellow. The soils are derived from the disintegration of sandstones and shales, from Silurian to Carboniferous in age. The surface features consist of gently rolling tablelands, hills, and mountains. In Lawrence County four types are mapped, the stony loam, fine sandy loam, loam, and silt loam.

DEKALB STONY LOAM.

The soil of the Dekalb stony loam to a depth of 6 to 10 inches consists of a grayish to pale-yellowish fine sandy loam or very fine sandy loam to silty loam. The subsoil is a pale-yellow fine sandy clay. Sandstone fragments and outcrops are abundant. In some places the surface is literally covered with these fragments, and frequently they are distributed throughout both the soil and subsoil to such an extent that penetration with the soil auger is difficult.

The Dekalb stony loam is the predominant soil on Sand Mountain. It occurs to a small extent on Little Mountain. The most continuous areas are in the southwestern corner of the county, in township 8 south, ranges 8 and 9 west.

The type comprises the roughest and most uneven areas in Lawrence County. It occupies the steep, broken, and rough mountain slopes between the ridge crests and the stream courses. Owing to

the steepness of the surface the run-off is rapid and drainage is excessive.

The type, while residual in origin, has been largely formed through the agency of erosion. The streams which ramify throughout the mountain slopes have carried away the soil material almost as fast as weathering has caused the disintegration of the sandstone formations. As a result the underlying rocks are near the surface and outcrops are frequent, while large quantities of rock fragments are scattered over the surface.

Owing to its topographic position and stony character, practically none of the type is cultivated. The forest growth consists principally of hardwoods, such as white, black, red, chestnut, and blackjack oaks, poplar, hickory, and shortleaf pine, and an undergrowth of shrubs. Lespedeza and wild grasses grow where the forest is not too thick, and the region was formerly used as a free range for cattle. Land of this type is valued at $2 to $5 an acre.

DEKALB FINE SANDY LOAM.

The surface soil of the Dekalb fine sandy loam consists of a gray, brownish-gray, or yellowish-gray fine sandy loam having a depth of 8 to 12 inches. The subsoil is a pale-yellow friable fine sandy clay, usually extending to a depth of several feet, though occasionally the sandstone rock is encountered within the 3-foot section. This type includes a few spots of grayish-brown fine sand, grading at about 6 inches into a pale-yellow fine sand which extends to a depth of 16 to 20 inches. The subsoil of such spots is a pale-yellow friable fine sandy clay. It also includes patches of Dekalb very fine sandy loam, Hanceville fine sandy loam, and Dekalb stony loam too small to be shown separately on the soil map. In some areas of this type small particles and fragments of sandstone are scattered over the surface, but not in sufficient quantities to render the soil gravelly or stony in character.

The type occurs in strips in the southern part of the county. It is confined to the Cumberland Plateau region, locally known as Sand Mountain.

The Dekalb fine sandy loam occupies plateaulike and gently rolling areas in the southeastern part of the county and high, narrow ridge crests in the southwestern part. The surface becomes rolling to broken as the streams are approached, and the type gradually gives way to the Dekalb stony loam. The gently rolling and broader areas have good natural surface drainage, while the areas lying on the narrow divides are usually excessively drained. The topography of a large part of this type, especially near the stream heads, is such that terracing is necessary in order to prevent destructive erosion.

The type in practically all the western areas and the greater part of the eastern areas is forested to white, black, red, chestnut, and blackjack oaks, hickory, and poplar.

Owing to its rough, broken topography, its remoteness from lines of transportation, and its low productiveness, this soil is not as extensively cultivated as the Dekalb silt loam. Cotton and corn are the leading crops. The yields are slightly lower than on the Dekalb silt loam. Peanuts and sweet potatoes do well. Garden vegetables are grown only for home consumption. The soil is deficient in organic matter.

Land of this type is not so highly esteemed as the silt loam and is usually held for $5 to $10 an acre.

DEKALB LOAM.

The surface soil of the Dekalb loam consists of a yellowish-gray or pale-yellow loam, about 6 to 12 inches deep. The subsoil is prevailingly a yellow, friable fine sandy clay. Locally the lower part of the subsoil consists of a brown or yellowish-brown to faintly reddish clay. When rubbed between the fingers it has a characteristic greasy or soapy feel. In many instances arenaceous and argillaceous shale and fragments of a brown ferruginous rock are abundant on the surface and in the subsoil.

The type is inextensive in this county, being found only on Sand Mountain. It occurs in patches on the isolated hills and ridge crests usually somewhat elevated above the other members of this series. The largest areas are encountered in the southeastern part of the county.

The Dekalb loam is derived chiefly from argillaceous shales and associated sandstones of the coal measures formation.

The topography is rolling to hilly and mountainous. Drainage is generally excessive. The surface features of this type render it undesirable for general farming, and practically all of it is forested with a growth of shortleaf pine and white, red, chestnut, and black oaks, with some poplar and black gum. Lespedeza and other grasses do well. This type is best adapted to forestry and grazing.

This is not a highly prized soil. It brings $2 to $5 an acre, the value depending largely on the forest growth.

DEKALB SILT LOAM.

The surface soil of the Dekalb silt loam in the typically developed areas consists of a light-gray to yellowish-gray very fine sandy loam to silt loam ranging in depth from 6 to 12 inches. The subsoil is prevailingly a pale-yellow loam, which abruptly passes into a friable fine sandy clay, continuing downward to a depth of 3 feet or more.

Locally, the lower part of the subsoil has a reddish or brownish cast. In some places the disintegrated sandstone is within 2 to 4 feet of the surface. Frequently on the steeper slopes and narrower ridges the subsoil has a red to reddish-brown color. Such spots are really the Hanceville very fine sandy loam, but are too small to be shown on the soil map. Southeast of Hatton and in a few other isolated spots the surface soil is finer in texture than usual. A few small bodies of the Dekalb fine sandy loam are included with this type.

This is one of the most extensive and important soil types in Lawrence County. It occurs as a continuous belt ranging in width from about 6 to 8 miles and extending in an east-and-west direction across the county, occupying that extension of the Cumberland Plateau locally known as Little Mountain.

The type occupies broad, gently rolling, and plateaulike areas bordering the small streams. About their headwaters the surface varies from gently rolling to rolling, while in places adjoining the larger streams it is broken and rough. The surface features of the type as a whole are favorable for farming. Natural surface drainage is well established throughout, and the more rolling areas are in places excessively drained and subject to erosion.

The larger part of the type is forested with white, black, and blackjack oak, persimmon, poplar, gum, and shortleaf pine. About 40 per cent of it is farmed or used for pasturage.

Cotton, corn, peanuts, sweet potatoes, garden vegetables, peaches, apples, and plums do well. Cotton is the most important crop, the yields ranging from one-third to one-half and occasionally one bale per acre. At planting time 100 to 200 pounds per acre of a 10–2–2 fertilizer mixture is usually applied to cotton. Corn is the second crop of importance, but a much smaller acreage is devoted to it than to cotton. Corn yields range from 15 to 35 bushels per acre, but 67 bushels has been obtained on a test acre. Commercial fertilizers are seldom, if ever, applied to corn, but barnyard manure is occasionally used. Some cowpeas are grown, generally between the corn rows. Sweet potatoes do well, but are grown only for home use.

The Dekalb silt loam is a mellow and very easily tilled soil, but, like most of the soils in Lawrence County, it is deficient in organic matter. It responds freely to fertilization and manuring and is capable of being built up to a rather high state of productiveness. It is stated by many farmers that this soil yields best during years of moderately heavy rainfall. This is probably due to the fact that both the soil and subsoil drain out well, and that the underlying sandstone is not retentive of water, as is evidenced by the depth of the water table, which is 40 to 100 feet below the surface.

Ten or fifteen years ago this land could be bought for $1 to $5 an acre. At present it ranges in value from $8 to $25 an acre, depending upon improvements.

The results of mechanical analyses of samples of the soil and subsoil of the Dekalb silt loam are given in the following table:

Mechanical analyses of Dekalb silt loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
414649	Soil	0.2	0.6	1.0	25.9	13.0	51.9	7.5
414650	Subsoil	.0	.2	.7	25.0	10.2	47.5	16.1

CLARKSVILLE SERIES.

The surface soils of the Clarksville series are gray, with yellow subsoils and red substrata. The soils are gravelly as a rule, the gravel consisting of chert fragments. The soils are derived from cherty limestones. The Clarksville soils occupy both level and undulating uplands and rough, hilly country with steep slopes. The series is extensively developed in northern Alabama, Tennessee, and Kentucky. In Lawrence County, Ala., it is represented by a single type, the silt loam.

CLARKSVILLE SILT LOAM.

The surface soil of the Clarksville silt loam is a light-gray to yellowish-brown silt loam, of a mellow, friable structure and 6 to 8 inches deep. On drying out the surface presents a grayish cast. The subsoil is a yellow to brownish-yellow, friable fine sandy clay or clay, which passes at about 20 to 24 inches into a yellowish-red, or red mottled with yellow and gray, heavy clay. When dry this clay is moderately friable; when wet it is plastic. Small black and brown iron concretions are common throughout the subsoil, and the lower subsoil, as shown in the road cuts, is similar in appearance to the Decatur subsoils. About 3 miles northeast of Hillsboro the surface soil in spots too small to map contains more fine sand than usual. Such patches are really the Clarksville loam. Chert fragments and sandstone particles are present on the surface of the type in the extreme northwestern corner of the county, being more noticeable as the drainage ways are approached. The soil is deficient in organic matter.

The type is developed mainly in the Tennessee Valley, and to a less extent in the Moulton Valley. The largest and most extensive area is in the extreme northwestern corner of the county. Small bodies and patches occur northeast of Hillsboro, to the north of

Moulton, and in a few other places. The type occupies moderately high elevations, varying from nearly level and undulating to gently rolling, and is higher than the surrounding soils. Near the stream courses the surface is somewhat broken in places, and low bluffs are frequently encountered along Town and Big Nance Creeks. In general the type is favored with good natural surface drainage. Bordering the stream courses a part of it is excessively drained, and the surface waters in their rapid flow to the drainage ways have carved out V-shaped gullies and ravines.

The greater part of this type is under cultivation. A part of it supports an original forest growth of white, red, black, and post oaks, shellbark hickory, walnut, and elm.

Corn, cotton, oats, clover, and grasses, especially Bermuda grass and lespedeza, do well on this soil. Where properly seeded and handled it is the best grass land in the county. Cotton produces one-third to three-fourths bale per acre, corn 20 to 45 bushels, oats 25 to 50 bushels, and clovers and grasses 1 to 2½ tons. Cotton is fertilized at the time of planting with 100 to 225 pounds of commercial fertilizer per acre. Very little attention is given to the rotation of crops. This soil with proper treatment is capable of being built up to a high state of productiveness.

The Clarksville silt loam is closely related in agricultural value to the Decatur and Hagerstown soils and sells for $15 to $25 an acre.

Hollywood Series.

The soils of the Hollywood series are characterized by their dark-gray to black color, heavy texture, and refractory structure. The subsoils consist of dark-gray to yellow, sticky, heavy clay, occasionally mottled with red. These soils are of limestone origin and occupy low, flat limestone valleys, often being encountered near streams. In Lawrence County there are encountered only the loam and clay types.

Hollywood loam.

The surface soil of the Hollywood loam is a dark-brown or dark-gray to black loam 6 to 8 inches deep. The subsoil is a black, tenacious clay, which becomes drab or steel-gray in color in the lower part of the 3-foot section. Ocherous-yellow ferruginous concretions are commonly encountered in the subsoil, and frequently occur in noticeable quantities along the line of demarcation between the soil and subsoil. Bordering the higher lying soils the immediate surface material is commonly a brown loam or fine sandy loam and the subsoil is a black or dark-drab, heavy, plastic clay, grading into a yellowish plastic clay.

The topography is uniformly flat and level, the type being slightly elevated above the Hollywood clay. The surface drainage is poor,

but a large part of the type has been reclaimed by means of open ditches, and practically all areas could be drained in this way. The impervious and tenacious structure of the subsoil hinders the downward percolation of rain water and also retards the lateral subterranean movement of water. For this reason tile drains are not as effective as upon the higher lying, more friable clays.

The wet condition of this type favored the growth of a heavy vegetation, the decay of which has resulted in the high content of vegetable matter and the dark color.

A large part of the Hollywood loam has been cleared and is under cultivation. The remainder is forested with white, red, post, willow, and water oaks, elm, honey locust, gum, hickory, and cedar. Corn, oats, and grasses do well on this soil. Cotton does well on the better drained areas. Corn, the principal crop grown, yields 20 to 40 bushels per acre, oats 20 to 40 bushels, grasses 1 ton to 2½ tons, and cotton one-third to one-half bale.

The Hollywood loam is naturally a strong and productive soil. The largest yields are obtained during moderately dry seasons. The soil has a tendency to bake and clod, but to a much less extent than the Hollywood clay. It is slightly acid. In a few places throughout the type the "rusting" of cotton and the "frenching" of corn are of common occurrence. This soil is valued at $15 to $25 an acre.

HOLLYWOOD CLAY.

The surface soil of the Hollywood clay to a depth of 3 to 5 inches consists of a black or dark-gray heavy clay, underlain by a black, waxy, heavy clay, which is drab in color in the lower part of the 3-foot section. Oxide-of-iron concretions are common in the subsoil. In the vicinity of Landersville and near Ora School the limestone rock lies near the surface in many places, and occasionally outcrops. Such areas are locally known as "cedar glades." Along the line of contact with the higher lying soils there is frequently a thin overwash of reddish-brown loam or fine sandy loam.

The type has a comparatively small area in the county. It occurs only in the Moulton Valley, in small tracts. The largest areas are near Ora School and to the south of Moulton. The type occupies low, level areas and nearly flat depressions having poor natural surface drainage. Owing to the impervious character of the subsoil, internal drainage is very slow.

The Hollywood clay is a residual soil, being derived from limestone. This type was formerly in a semiswampy condition, which favored the growth of water-loving plants, and the decay of these in the presence of moisture has given the soil its black color.

Practically all of the Hollywood clay is forested with white, red, post, willow, and water oaks, hickory, honey locust, elm, and sweet and

black gum. In the few cultivated areas corn is the main crop, yielding 15 to 30 bushels per acre. Best results are obtained during dry seasons. The Hollywood clay is naturally a strong and productive type, but on account of the intractable character of both the soil and subsoil it is difficult to till. It requires heavy equipment and must be handled under proper moisture conditions to get a good tilth. The surface soil bakes and cracks open when dry, and is sticky and plastic when wet. One of the most difficult problems in connection with the reclamation of this soil is the establishment of proper drainage.

The Hollywood clay is generally sold in conjunction with adjoining soils and is valued at $15 to $20 an acre.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of this type:

Mechanical analyses of Hollywood clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
414611	Soil	0.2	0.4	0.6	8.4	5.7	57.0	27.5
414612	Subsoil	3.4	2.6	1.4	9.8	6.6	50.0	25.7

Colbert Series.

The surface soils of the Colbert series are grayish to light brown and the subsoils yellow and frequently plastic in structure. The series is derived from pure limestone or limestone mixed with sandstone. These soils are typically developed as flat to undulating valley lands. Both surface drainage and underdrainage are often poorly established. Of the soils of the Colbert series, the fine sandy loam and silt loam, each with a phase, and the silty clay loam and clay types are found in Lawrence County.

COLBERT FINE SANDY LOAM.

The surface soil of the Colbert fine sandy loam to a depth of 6 to 8 inches consists of a light-gray to yellowish-gray or yellowish-brown fine sandy loam. The subsoil is a pale-yellow or yellow heavy fine sandy loam, slightly mottled with gray. This abruptly passes into a yellow fine sandy clay, mottled with gray. A mottled gray, yellow, and brown fine sandy clay or clay is usually encountered within the 3-foot section.

There are no very extensive areas of this type, but it occurs in a number of places throughout the Moulton and Tennessee Valleys. Its greatest development is in the vicinity of Hillsboro, Town Creek, and Harmony School. The type occupies level to undulating areas

and low ridges, all of which are slightly elevated above the associated Colbert silt loam. Drainage is much better established on this type than upon the heavier members of the series. In the flatter and lower areas, however, artificial drainage is necessary.

The larger part of the Colbert fine sandy loam is cultivated, but there are a few small patches which support a forest growth of white, water, and willow oaks, elm, and some hickory. The soil warms up early in the spring and is mellow and very easily tilled. Cotton, corn, oats, peanuts, sweet potatoes, and vegetables do well. Cotton yields one-third to three-fourths bale, corn 20 to 40 bushels, and oats 20 to 50 bushels per acre. Commercial fertilizers are applied to cotton at planting time. Corn is seldom fertilized, except with a light application of barnyard manure, which gives better results than commercial fertilizers. Cowpeas are grown inextensively, being planted between the corn rows at the last cultivation. Cotton is the principal crop, and it is not uncommonly planted in the same field several years in succession. Corn is sometimes alternated with cotton every three or four years. On account of the remoteness of the type from markets, very little attention is given to the production of sweet potatoes and truck crops, and these are grown only for home consumption.

Lands of this type sell for $15 to $30 per acre, depending upon improvements and location with respect to markets.

Colbert fine sandy loam, shallow phase.—The surface soil of the Colbert fine sandy loam, shallow phase, is prevailingly a yellowish-gray to brownish-gray fine sandy loam to a depth of 4 to 6 inches. It is underlain by a yellow to yellowish-brown, mottled with gray, fine sandy clay, which abruptly passes into a heavy plastic clay mottled with yellow and gray. With the approach to the mountain sections, where the phase is forested, the surface soil has a light-brown to brown color, largely due to the presence of vegetable matter. There are some black and brown ferruginous concretions present in the subsoil. The phase includes a few small patches where the limestone outcrops. These are largely covered with a growth of cedar and are locally called "cedar glades." In such areas the surface soil is very thin, and in places it has been entirely removed, leaving exposed a yellow to yellowish-brown heavy, plastic clay mottled with gray.

This phase, which is inextensive, occurs in narrow strips along the base and lower slopes of Little and Sand Mountains. The largest strips are encountered south of Hillsboro.

The topography is gently sloping to rolling. The natural surface drainage is good, but the internal drainage is poor, on account of the impervious nature of the plastic clay subsoil. This soil represents areas of the material giving the Colbert clay, over which sandy material

has been spread, probably through colluvial influence from the sandy soils of the escarpment along the mountain slopes.

A large part of this phase is under cultivation and the remainder is forested with white, red, and black oaks, hickory, sweet gum, dogwood, pine, and cedar.

Cotton, corn, soy beans, and cowpeas are grown on this soil. Cotton produces one-third to one-half bale, corn 15 to 25 bushels, and cowpeas and soy beans 1 to 2 tons of forage per acre. The soil is difficult to work and is not so productive as the typical Colbert fine sandy loam. It is best suited to pasturage, as lespedeza, Bermuda grass, and other grasses afford good grazing. A heavy equipment is necessary for efficient cultivation, owing to the stiff subsoil, which lies within reach of good plowing.

The Colbert fine sandy loam, shallow phase, is not so highly valued as the typical soil and is sold for $10 to $20 an acre.

The results of mechanical analyses of samples of the soil and subsoil of the typical soil are given in the following table:

Mechanical analyses of Colbert fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
414639	Soil	0.3	2.4	9.1	46.2	7.0	28.2	6.2
414640	Subsoil	.2	1.0	3.2	36.0	7.2	35.7	16.4

COLBERT SILT LOAM.

The surface soil of the Colbert silt loam, to a depth of about 6 to 12 inches, consists of a light-gray to yellowish-gray, very mellow silt loam. The typical subsoil is a heavy silt loam of pale-yellow or yellowish-gray color, passing into a gray, drab, or mottled yellow plastic clay in the lower part of the 3-foot section. In some of the more poorly drained situations the surface soil is a gray to almost white silt loam, underlain by a light-gray or yellowish-gray heavy silt loam to silty clay loam. Occasionally the immediate surface layer has a brownish cast. A few small iron concretions are distributed throughout the soil and subsoil, being more noticeable in the flatter areas. This type is generally spoken of as "crawfish" land.

The type is distributed throughout the Tennessee and Moulton Valleys. The largest areas are north of Hillsboro, and between Moulton and the Franklin County line.

The topography is uniformly flat and nearly level. As a whole the type has poor natural surface drainage, but a large part of it could be drained by open ditches and tiles. Some areas of the type, how-

ever, would be difficult to drain at a reasonable expenditure. After heavy rains water frequently remains on the surface for a sufficient length of time to be injurious to growing crops.

Only a small percentage of this type is farmed, while considerable areas are devoted to pasturage. The remainder is forested with a native growth of red, white, post, willow, and water oaks, elm, hickory, gum, and ash.

Bermuda grass and lespedeza grow wild on this soil and afford good grazing for cattle and sheep. Some of the better drained areas are used for the production of corn, cotton, and oats. Corn produces 15 to 30 bushels, cotton one-third to one-half bale, and oats 20 to 35 bushels per acre. Cotton receives a light application of commercial fertilizer, while corn is seldom fertilized.

The Colbert silt loam is an easily tilled soil when plowed and harrowed under proper moisture conditions. It is deficient in organic matter and slightly acid. Lands of this type sell for $12 to $20 an acre.

Colbert silt loam, hardpan phase.—The surface soil of the hardpan phase of the Colbert silt loam varies from a yellowish-gray through gray to a rusty-brown silt loam. This is underlain at about 5 to 10 inches by a "hardpan" layer of silt or clay containing small iron concretions in such large quantities that boring is difficult. This layer is several inches thick and occasionally extends to a depth of 3 feet or more. It is underlain by a yellow, mottled with gray, plastic clay, which also contains large quantities of iron concretions. The concretions are ocherous yellow or yellowish brown inside, with a rusty-brown surface.

This phase is very limited in extent, occurring only in a few small spots in the Moulton Valley, the largest strip lying northeast of Moulton. It occupies low, flat areas along the streams and slight depressions, and is poorly drained.

Nearly all of the phase is either forested with oak, elm, hickory, and other trees or used for pastures. It furnishes about as good grazing as does the typical soil. It is not considered a desirable soil for farming. Some patches are cultivated to corn and sorghum, but the yields are lower than upon the typical Colbert silt loam.

COLBERT SILTY CLAY LOAM.

The surface soil of the Colbert silty clay loam consists of a dark-gray to brownish-gray silt loam to silty clay loam which passes abruptly at about 6 or 8 inches into a tough, plastic, yellow silty clay, mottled with gray. This in turn grades into a greenish-yellow or gray to drab, heavy, plastic clay. Small round iron concretions occur on the surface and throughout the soil profile.

This type occurs in the Moulton and Tennessee Valleys. It is very inextensive. The largest areas occur north of Town Creek and near Wheeler and Speake School, with smaller patches scattered over the Moulton Valley. The type occupies low situations, slight depressions, and basinlike areas having a nearly level and flat surface, and the natural surface drainage is poor.

The greater part of the type is forested with water oak, willow oak, black oak, elm, hickory, and black gum, with a growth of other water-loving vegetation. Some of it has been cleared and is largely used for pasture, though corn, cotton, and sorghum are grown. Cotton yields one-third to one-half bale and corn 15 to 35 bushels per acre. Cotton is fertilized with an application of a 10–2–2 mixture. This soil is slightly acid, as shown by litmus tests. It is not a desirable farming soil, and is best suited to grasses. Where properly drained it can be made a productive soil, but on account of its basinlike situation drainage is both difficult and expensive.

Land of this type is not as highly prized as that of other members of the Colbert series, its value depending upon its forest growth and its fitness for use as pasture land. It is sold only in connection with associated types.

COLBERT CLAY.

The surface soil of the Colbert clay in its most representative development is a pale-yellow to yellowish-brown silty clay to clay, underlain at about 4 to 6 inches by a yellow, mottled with gray and rusty-brown, plastic clay, which quickly grades into a yellow, stiff, plastic clay mottled with gray. This clay is compact and impervious, and contains small black and brown ferruginous concretions. Included patches, shown on the map by rock outcrop symbols, are locally known as "glades" and "prairies." In these areas the subsoil often consists of a drab or dark-colored, extremely plastic clay, and the limestone rocks are encountered at depths of 1 inch to 20 inches.

The Colbert clay is not extensive in this county, occurring in places along the base or lower slopes of Little and Sand Mountains and in other nearly flat areas. The largest continuous areas are encountered south of Hillsboro and southeast of Town Creek.

Very little of the Colbert clay is cultivated, and it is not considered a good farming soil. The greater part of it is forested with white, black, chestnut, and red oaks, and gum, and all the "glade" areas with cedar and haw.

Some cotton and corn are grown on this type, but the yields are rather low. Grasses do well and furnish good pasturage. Much of the type could be farmed, but heavy equipment is required.

Land of this type is valued mainly for its pasturage and timber, and is held at $3 to $6 an acre.

The following table gives the results of mechanical analyses of samples of the soil and subsoil of the Colbert clay:

Mechanical analyses of Colbert clay.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
414607	Soil	1.2	3.0	1.6	3.8	3.7	49.1	37.7
414608	Subsoil	1.0	1.6	1.2	3.0	1.9	44.7	46.7

HUNTINGTON SERIES.

The Huntington soils are light brown to brown, and the subsoils yellow to light brown. Frequently there is little change in the color or the character of the material from the surface downward throughout the soil section. These soils are developed in the Limestone Valleys and Uplands and the Appalachian Mountain regions in the first bottoms of streams, where they are subject to overflow. As a rule they are well drained. They represent the best drained soils of the first bottoms of the region. They consist generally of material derived from limestone, sandstone, and shale soils. In Lawrence County four types of this series are mapped—the fine sand, fine sandy loam, loam, and clay.

HUNTINGTON FINE SAND.

The Huntington fine sand is a brown to grayish-brown loamy fine sand to fine sand, underlain by a yellowish-brown to grayish fine sand. Both soil and subsoil are uniform in texture and color.

This type is a bottom-land soil, being found along streams flowing from Little and Sand Mountains which carry a large amount of fine sand in times of high water and deposit this load along their courses. It occurs mostly along the lower courses of Big Nance and Town Creeks.

The topography is flat to nearly level, with slight natural levees built up at or near the stream courses. As a whole the drainage is adequate, owing to the porous structure of the soil. The type is subject to overflow at times of high water, but dries rather quickly after the water subsides.

Much of this soil is under cultivation, though there are some forested areas, the growth consisting of oak, willow, beech, birch, hickory, walnut, and some shortleaf pine. The type is easily cultivated. The principal crops are corn and cotton, with some grasses. Corn produces 20 to 40 bushels per acre, cotton about one-half bale, oats 30 to 50 bushels, and grasses 1 to 2 tons. This is a good general farming soil. Truck crops, such as melons, potatoes, and cabbage, do well, but very little attention is given to them, owing to the lack

of markets. Cotton is sometimes fertilized with a 10–2–2 mixture to hasten maturity.

The Huntington fine sand is a highly prized soil and is not generally for sale. Prices range from $20 to $50 an acre. It is usually sold with other upland types, as it does not occupy large continuous areas.

HUNTINGTON FINE SANDY LOAM.

The surface soil of the Huntington fine sandy loam consists of a brown fine sandy loam ranging in depth from about 8 to 12 inches, and possessing a mellow structure. The subsoil is a light-brown to yellowish-brown fine sandy loam, slightly heavier in texture than the surface soil. Scattered over the surface and throughout the soil mass in areas along the Tennessee River there is an abundance of mica flakes.

This is an alluvial first-bottom soil. It is developed along the Tennessee River and other stream courses of the county and is subject to overflow during periods of high water. The topography is nearly level, though there is sufficient slope to give adequate drainage. Along the Tennessee River the type occupies slight natural levees, with a gentle slope away from the stream. Water rarely stands on the surface for any considerable period. As a whole this is the best drained alluvial soil in the county.

The larger part of this type is under cultivation, being farmed principally to corn. Some cotton is planted also. Corn produces 30 to 60 bushels per acre and cotton one-half to one bale, when not caught by frost. Much of the cotton on the alluvial soils fails to ripen. Both cotton and corn grow very rank. Oats are seldom grown, but yield 40 to 70 bushels per acre. The soil is loose and porous and easily worked, and is considered one of the most productive soils of the river flood plains. Truck crops, especially cabbage, melons, sweet and Irish potatoes, onions, and tomatoes, do well, but as there are no ready markets such crops are grown as a rule only for home consumption. Grasses do well, crab grass and Johnson grass producing 1 to 2 tons of hay per acre. In some of the better drained areas where water does not stand in periods of overflow it is probable that alfalfa could be grown successfully.

The type was originally forested with post oak, water oak, willow oak, sycamore, willow, birch, persimmon, and some shortleaf pine, and there are still many forested areas scattered along the stream banks.

As a rule this soil is plowed in the late spring to prevent wash by the spring overflows. Stubble and stalks are often burned instead of being plowed under. The soil has only a fair content of organic matter.

The Huntington fine sandy loam is a highly prized soil. It is seldom sold except in connection with the upland types. It is valued at $20 to $50 an acre.

HUNTINGTON LOAM.

The surface soil of the Huntington loam consists of 8 to 10 inches of a brown loam or silt loam of a mellow structure. The subsoil to a depth of more than 3 feet is a light-brown to dark-brown friable silt loam, silty clay loam, or silty clay. In spots the subsoil consists of a reddish clay, resembling that of the Abernathy silty clay loam. The texture becomes heavier with depth, and in places a clay is encountered. A few oxide-of-iron concretions are often present in the subsoil, and gravel occurs in the lower subsoil along some of the smaller streams. On drying out the material has a gray to drab color, resembling the subsoil of the Holly series.

The Huntington loam is distributed throughout the county. It occurs along the Tennessee River and the larger streams of the valley sections. The topography is flat to nearly level, with a slight slope toward the streams, except along the Tennessee River, where the slope is away from the stream and toward the lower levels or swales of Huntington clay. As a whole the type is fairly well drained, though there are some areas in which artificial drainage is required to fit the land for cultivation. There are included with this type a few spots of gray "crawfish" land having a slightly heavier subsoil. These spots are composed of Holly soils but are too small to be shown on a map of the scale used in the present survey.

Originally the type was forested with a growth of oak, sweet gum, poplar, birch, maple, sycamore, cottonwood, and pines, with an undergrowth of briers and water-loving vegetation. The low, poorly drained areas are forested at present, but the better drained areas are cleared and in cultivation. Corn and forage crops are the leading products. Cotton is a minor crop. Corn yields 25 to 45 bushels per acre when properly handled. Cotton produces one-third to three-fourths bale, with an average of one-half bale per acre. Bermuda, Johnson, and crab grass produce 1 to 2 tons of hay per acre. Some cowpeas are grown, yielding 1½ to 2½ tons per acre. Bermuda grass and Japan clover do well, and can be grown profitably for hay, as well as for grazing.

Little attention is given to crop rotation on this type. In preparing the ground for crops a general method is to plow in the spring, as where fall plowing is practiced the soil is more likely to be washed away by the early spring freshets. The common method is to throw the soil into ridges and plant the crop on these. This serves well in seasons of heavy rainfall. Cotton and corn are given rather shallow cultivation four or five times during the growing season. Commercial

fertilizers are used with cotton at the time of planting in quantities varying from 100 to 300 pounds per acre. In some places the soil is slightly acid. With proper handling the type can be made one of the most productive of the alluvial soils.

Lands of this type are held in high esteem by the farmers, and range in value from $15 to $30 an acre.

HUNTINGTON CLAY.

The surface soil of the Huntington clay to a depth of 6 to 8 inches is a brown or rusty-brown silty clay, faintly mottled with drab and brown. The subsoil is a drab or steel-blue plastic silty clay, showing mottlings of brown and yellow. The soil upon drying, cracks and breaks up into cubes or small aggregates.

The type is inextensive. It occurs only as narrow strips in the Tennessee River flood plains. The broadest of these strips lies in the extreme northeastern corner of the county. The type occupies swales and depressions lying between the escarpment and the higher lying Huntington soils along the river. It is naturally poorly drained and is subject to deep overflow. This is a strong soil, but in its present condition very little of it can be cultivated. In order fully to reclaim it high dikes must be constructed and pumping plants installed. This would entail considerable expense and apparently will not be attempted in the near future.

The original forest growth on this type consists of water, willow, pin, overcup, and pool oaks, sweet gum, and swamp haw.

Abernathy Series.

The surface soils of the Abernathy series are red, while the subsoils are mottled reddish, brown, and gray or grayish. These soils are developed in the first bottoms of streams, where they are subject to overflow. The drainage is poor. The Abernathy soils are derived principally from materials washed from the Decatur soils. The silty clay loam is the only member of this series recognized in Lawrence County.

ABERNATHY SILTY CLAY LOAM.

The soil of the Abernathy silty clay loam is a reddish-brown, brown, or red silty clay loam to silty clay, having a depth of 8 to 12 inches. The subsoil is a steel-gray, plastic, sticky silty clay to clay, having a bluish cast and extending to a depth of 6 feet or more.

The type is not extensive. It occurs in many small bodies and patches throughout the Moulton and Tennessee Valleys. It occupies the first bottoms along the smaller streams, and is mainly confined to the headwaters of the drainage ways, but it is occasionally encountered in the valley regions as sinks or slight depressions, where

drainage is effected by underground channels. The soil in the latter locations is closely associated with the Decatur silty clay loam. The strips along the streams are subject to overflow, and the spots occupying the sinks are frequently covered with water. With the exception of a few of the sinks, however, all this type is fairly well drained.

The greater part of this type is used for the production of corn oats, and grasses. It is one of the best corn soils in the county, producing 30 to 60 bushels per acre without fertilization. Oats and grasses also yield well.

Land of this type is highly prized and is valued at $25 to $50 an acre.

The results of mechanical analyses of samples of the soil and subsoil of the Abernathy silty clay loam are given in the following table:

Mechanical analyses of Abernathy silty clay loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
414619	Soil	0.0	0.3	0.6	10.8	8.4	60.0	20.0
414620	Subsoil	.4	.4	1.2	16.0	6.7	51.4	23.8

HOLLY SERIES.

The Holly series is characterized by the gray color of the surface soils and the mottled gray and yellow or brown color of the subsoil. These soils are developed in the first bottoms of streams and are subject to frequent overflow. The drainage is poor, and in their natural condition the soils are best suited to grasses. The component material is wholly alluvial and is derived from soils of the sandstone and shale formations of the Appalachian Mountains and from the limestone soils of the Limestone Valleys and Uplands region. These soils are less well drained and less productive than the Huntington. In this county the series is represented by the fine sandy loam and silt loam members.

HOLLY FINE SANDY LOAM.

The surface soil of the Holly fine sandy loam to a depth of 6 to 10 inches is a gray to almost white fine sandy loam. The subsoil is a sticky, plastic fine sandy clay, which quickly passes into a mottled gray and yellow plastic clay, and this in turn into a gray heavy clay within the 3-foot section. Scattered throughout the subsoil are varying quantities of small black and brown iron concretions. These are present to some extent in the surface material.

This type is confined to small bodies and patches situated in the broader bottoms of the larger streams which flow through the Moul-

ton and Tennessee Valleys and is subject to overflow. The surface is prevailingly flat and level and natural drainage is poor, though better than that of the silt loam. The position of the type is such that good drainage can be established by artificial means.

The Holly fine sandy loam is an alluvial soil consisting of materials brought down and deposited by the streams from both the valley and mountain regions. In places it is modified by colluvial material.

Only a small part of this type is farmed, the remainder supporting a forest growth of red oak, willow oak, water oak, and gum. The crops grown are mainly corn and grasses, with some cotton. Corn yields 20 to 30 bushels per acre, oats 20 to 40 bushels, and hay 1½ to 2½ tons. The soil is deficient in organic matter.

There are no large continuous bodies of this soil and it is usually sold in connection with associated types. It is valued at $8 to $20 an acre.

The results of mechanical analyses of samples of the soil, subsoil, and lower subsoil of this type follow:

Mechanical analyses of Holly fine sandy loam.

Number.	Description.	Fine gravel.	Coarse sand.	Medium sand.	Fine sand.	Very fine sand.	Silt.	Clay.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
414603	Soil	0.2	0.4	1.9	44.8	11.6	31.7	9.2
414604	Subsoil	.2	.2	2.6	39.6	5.4	36.7	14.9
414604a	Lower subsoil.	.0	.1	.1	12.7	11.8	43.1	32.0

HOLLY SILT LOAM.

The surface soil of the Holly silt loam, to a depth of 8 or 10 inches, is a gray to almost white silt loam of mellow structure. This is underlain by a gray or mottled gray and yellow silty clay loam, which passes into a drab or mottled gray and yellow plastic silty clay.

This type occurs in small patches in the Tennessee River flood plain and along some of the other large streams of the county. It occupies flat, level, poorly drained first-bottom areas subject to overflow. Some of the type may be easily drained and reclaimed for cultivation.

Very little of the type is farmed, the greater part being forested with different species of oaks and sweet and black gum. Cotton and corn are grown to some extent but the yields are very low. The soil is decidedly deficient in organic matter.

Land of this type is sold in connection with associated soils. It is considered less valuable than the Huntington types.

Miscellaneous Material.

ROUGH STONY LAND.

Rough stony land embraces areas of nonarable land consisting of blufflike mountain slopes between the plateaus and valleys, where bowlders and outcropping ledges of rock occur in sufficient abundance to preclude their use, except for forestry and pastures.

Erosion has been very active, so that the soil has not accumulated over the larger part of the areas. What interstitial soil material occurs is variable in texture, though the larger percentage is sandy. The subsoil is a brown or reddish-brown to red clay having a very heavy, tenacious, plastic structure.

The largest areas in the county occur along the north front of Sand Mountain, forming the lower slopes and isolated hills and knolls. Other areas lie along the bluff of the Tennessee River and along the streams in mountainous sections. The topography is very rough and broken.

Most of the Rough stony land is still in forest, very little of it having been cleared for pasture. The forest growth consists principally of cedar, oak, black haw, and dogwood. Many areas are locally referred to as "cedar glades."

The value of this land is based almost entirely upon the character of its forest growth. It sells for $2 to $5 an acre.

SUMMARY.

Lawrence County is located in the northwest-central part of Alabama. It has an area of 700 square miles, or 448,000 acres. It includes a part of the Moulton and Tennessee Valleys, extensions of the Cumberland Plateau, consisting of Little and Sand Mountains, and a small area of the Coastal Plain. The valley sections lie 525 to 650 feet above sea level, and the mountain sections 675 to 1,000 feet.

The climate is mild and pleasant. There is a long growing season. The rainfall is ample for crop needs and is well distributed throughout the year.

The county was originally forested. At present nearly 70 per cent of the land is in farms. The Tennessee and Moulton Valleys are thickly settled. The interests of the county are primarily agricultural. The farms are generally small.

The principal agricultural products are cotton, corn, and hay, crops ranking in importance in the order named. Most of Lawrence County is in a high state of cultivation, especially the valley and Little Mountain sections.

The raising of live stock and the production of fruits offer good opportunities.

The soils of Lawrence County are largely residual, and are derived from limestones, sandstones, and shales. The alluvial soils are not extensive.

Thirty soil types, including Rough stony land, are mapped.

The Decatur clay loam is the most extensive type in the county. It is a valley soil and is considered a very strong soil for general farm crops.

The Decatur clay, silty clay loam, fine sandy loam, and gravelly loam are inextensive types. They are productive soils, though the last named is undesirable on account of its stony character.

The Colbert silt loam is the most extensive type of this series and occupies depressions in the valley regions. When properly drained and limed it is productive. The hardpan phase of this type occupies flat, poorly drained areas in the Moulton Valley.

The Colbert fine sandy loam occupies low slopes or elevations slightly higher than the silt loam. It is a good soil for cotton, corn, and other farm crops. Its inextensive shallow phase is less valuable.

The Colbert silty clay loam occupies swales or depressions. It is largely forested and is poorly drained.

The Colbert clay occupies isolated patches along Little and Sand Mountains and some flat areas in the Moulton Valley. Very little of the type is farmed. It is best suited to forestry and pasturage.

The Hagerstown fine sandy loam is quite extensive in the valley regions, and occupies rolling to gently rolling areas, slightly lower than the Decatur soils. It is a light and easily cultivated soil, and produces good yields of corn, cotton, fruits, and truck crops.

The Hagerstown loam occurs in the Moulton and Tennessee Valleys. It occupies flat to gently rolling areas. This soil produces good yields of general farm crops.

The Hagerstown stony loam is the least extensive type of the Hagerstown series, occupying knolls, ridges, and blufflike slopes in the valley regions, and as a whole is excessively drained. The type is not so generally farmed as the other types of this series.

The Clarksville silt loam is developed mainly in the northwestern corner of the county. It has a gently rolling to broken topography where found along stream courses. This soil is well adapted to farming.

The Hollywood clay is of small extent, occupying level to flat, gladelike areas in the Moulton Valley. During seasons of moderately heavy rainfall it produces good yields of corn and cotton. With thorough drainage this soil could be made very productive.

The Hollywood loam forms large areas in the Moulton Valley, occupying low basinlike situations having poor drainage. It produces good yields of corn and grasses where properly drained. This type and the Hollywood clay are locally known as "black lands."

The Dekalb fine sandy loam is quite extensively developed in the southern part of the county. It occupies plateaulike areas and ridge crests, and has a broken topography. Cotton, corn, grasses, fruits, and garden truck do well on the greater part of this type.

The Dekalb stony loam occurs on Sand and Little Mountains. It occupies rough, broken mountain slopes. Very little of the type can be cultivated successfully. It has a value for forestry and grazing.

The Dekalb loam is a very inextensive type. It occupies knolls, ridges, and ridge crests on Sand Mountain.

The Dekalb silt loam, the most extensive type of the Dekalb series, is found on Little Mountain, where it occupies gentle slopes and plateaulike areas. A large part of the type is farmed. It produces good yields of cotton, fruits, potatoes, and grasses. Crops do best in seasons of moderately heavy rainfall.

The Hanceville fine sandy loam is encountered on the north-facing slope of Little and Sand Mountains, with some isolated bodies surrounded by the Dekalb soils. As a whole it is excessively drained. The larger part of the type is forested at present. It is probably slightly stronger than the Dekalb soils. It produces good crops of cotton, corn, and fruits, where not excessively drained.

The Hanceville stony loam occupies north-facing escarpments of the mountains and is generally too stony and broken for farming. The greater part of the type is excessively drained.

The Ruston fine sandy loam is developed in the southwestern corner of the county. It occupies ridge crests. The topography is gently rolling. Cotton, sweet potatoes, and truck crops do well on this soil. The larger part of the type is forested.

The Huntington loam, fine sandy loam, and fine sand are productive alluvial soils lying above the Tennessee and other streams of the county. They are particularly valued for the production of corn.

The Huntington clay occurs as swales in the Tennessee River flood plain. It is subject to deep overflow. The soil is poorly drained. The larger part of this type is forested.

The Abernathy silty clay loam is encountered along some of the smaller streams. The type is subject to overflow. Some of it needs drainage. It is a productive soil for corn and grasses.

The Holly fine sandy loam is found in the overflowed bottoms of large creeks. The topography is flat. The soil is poorly drained. It is best suited to cotton, small grains, and grasses.

The Holly silt loam is an alluvial first-bottom soil, subject to overflow, and poorly drained. It is largely forested. With better drainage this type could be made very productive. It is best suited to grasses.

Rough stony land occupies steep mountain slopes. It is nonagricultural land.

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[PUBLIC RESOLUTION—No. 9.]

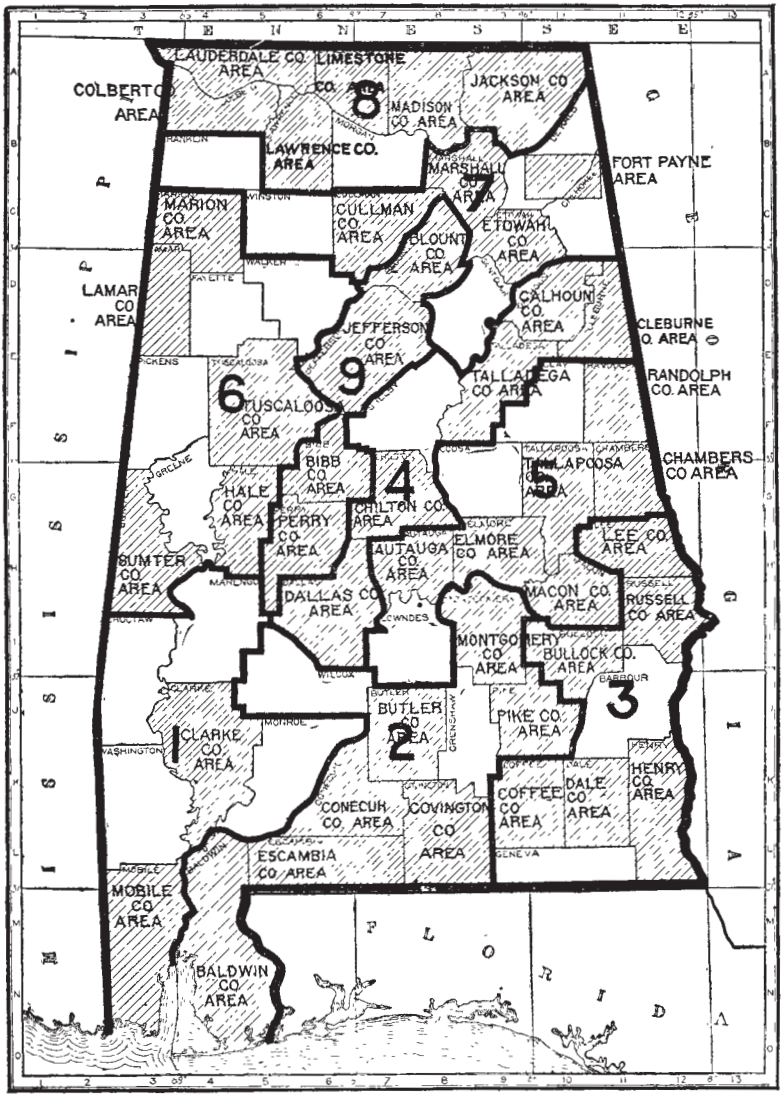
JOINT RESOLUTION Amending public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, "providing for the printing annually of the report on field operations of the Division of Soils, Department of Agriculture."

Resolved by the Senate and House of Representatives of the United States of America in Congress assembled, That public resolution numbered eight, Fifty-sixth Congress, second session, approved February twenty-third, nineteen hundred and one, be amended by striking out all after the resolving clause and inserting in lieu thereof the following:

That there shall be printed ten thousand five hundred copies of the report on field operations of the Division of Soils, Department of Agriculture, of which one thousand five hundred copies shall be for the use of the Senate, three thousand copies for the use of the House of Representatives, and six thousand copies for the use of the Department of Agriculture: *Provided*, That in addition to the number of copies above provided for there shall be printed, as soon as the manuscript can be prepared, with the necessary maps and illustrations to accompany it, a report on each area surveyed, in the form of advance sheets, bound in paper covers, of which five hundred copies shall be for the use of each Senator from the State, two thousand copies for the use of each Representative for the congressional district or districts in which the survey is made, and one thousand copies for the use of the Department of Agriculture.

Approved, March 14, 1904.

[On July 1, 1901, the Division of Soils was reorganized as the Bureau of Soils.]



Areas Surveyed in Alabama.

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U. S. DEPT. OF AGRICULTURE
BUREAU OF SOILS
MILTON WHITNEY, CHIEF
CURTIS F. MARBUT, IN CHARGE SOIL SURVEY

SOIL MAP
ALABAMA
LAWRENCE COUNTY SHEET

STATE OF ALABAMA
EMMETT O'NEAL, GOVERNOR
REUBEN F. KOLB, COMMISSIONER
AGRICULTURE AND INDUSTRIES
EUGENE A. SMITH, STATE GEOLOGIST

SOIL PROFILE
(3 feet deep)

Decatur gravelly loam — Fsl / C
Hagerstown loam — L / C
Decatur fine sandy loam — Fsl / C
Hagerstown stony loam — Sil / C
Decatur silty clay loam — Sicl / C
Hagerstown fine sandy loam — Fsl / C
Decatur clay loam — Cl / C
Hanceville stony loam — Fsl / Fsc
Decatur clay — C / C
Hanceville fine sandy loam — Fsl / Fsc
Colbert fine sandy loam — Fsl / C — Shallow phase
Hollywood loam — L / Hc
Hollywood clay — Fsl / Hc — Shallow phase
Colbert silty clay loam — Sicl / Sic
Huntington loam — L / Sic
Colbert silt loam — Sil / Hsil / C
Huntington clay — Sic / Hsic
Huntington fine sand — Sil / Sic / Hc — Hardpan phase
Fs / Fs
Colbert clay — Sic / Hc
Huntington fine sandy loam — Fsl / Fsl
Dekalb loam — L / Fsc
Holly fine sandy loam — Fsl / C
Dekalb stony loam — Fsl / Fsc
Holly silt loam — Sil / Sic
Dekalb fine sandy loam — Fsl / Fsc
Clarksville silt loam — Sil / C
Dekalb silt loam — Sil / Sil
Ruston fine sandy loam — Lfs / Fsc
Abernathy silty clay loam — Sicl / Sic

LEGEND
Fsl —Fine sandy loam
C —Clay
Sicl —Silty clay loam
Cl —Clay loam
Hc —Heavy clay
Slc —Silty clay
Sil —Silt loam
Hsil —Heavy silt loam
Hc —Heavy clay
L —Loam
Fsc —Fine sandy clay
Hsic—Heavy silty clay
Fs —Fine sand
Lfs —Loamy fine sand

LEGEND

Decatur gravelly loam — Dg
Hagerstown loam — Hg
Decatur fine sandy loam — Df
Hagerstown stony loam — Hy
Decatur silty clay loam — Ds
Hagerstown fine sandy loam — Hfs
Decatur clay loam — D
Hanceville stony loam — Hsl
Decatur clay — Dc
Hanceville fine sandy loam — Hv
Colbert fine sandy loam — Cs
Hollywood loam — Hol
Cs — Shallow phase
Hollywood clay — Hc
Colbert silty clay loam — Cy
Huntington loam — H
Colbert silt loam — Cl
Huntington clay — Hu
Cl — Hardpan phase
Huntington fine sand — Hf
Colbert clay — Cc
Huntington fine sandy loam — Hs
Dekalb loam — Dk
Holly fine sandy loam — Ho
Dekalb stony loam — Dl
Holly silt loam — Hl
Dekalb fine sandy loam — Dfs
Clarksville silt loam — Ck
Dekalb silt loam — Dsl
Ruston fine sandy loam — Rl
Abernathy silty clay loam — A
Rough stony land — R

CONVENTIONAL SIGNS

CULTURE
(printed in black)

City or Village, Roads, Buildings, Wharves, Jetties, Breakwater, Levee, Lighthouse, Fort.
Secondary roads and Trails
Railroads Steam and Electric
Bridges, Ferry
R. R. crossings, Tunnel
Ford, Dam
School or Church Cemeteries
Mine or Quarry Mine dumps Made land
Bluff, Escarpment, Rock outcrop and Triangulation station
Stony and Gravelly areas
Soil boundaries
Boundary lines
Boundary lines
Boundary lines
U. S. township and section lines

RELIEF
(printed in brown or black)

Contours Depression contours
Prominent Hills Mountain Peaks
Sand, Wash, and Sand dunes
Shore and Low-water line, Sandbar

DRAINAGE
(printed in blue)

Streams
Lakes, Ponds, Intermittent lakes
Intermittent streams
Springs, Canals and Ditches, Flumes
Swamp Salt marshes
Submerged marsh Tidal flats

The above signs are in current use on the soil maps. Variations from this usage appear in some maps of earlier dates.

W. Edward Hearn, Inspector Southern Division.
Soils surveyed by H. G. Lewis of the U. S. Department of Agriculture and J. F. Stroud of the Alabama Department of Agriculture and Industries

Scale 1 inch = 1 mile

A. Hoen & Co. Lith. Baltimore, Md.

Field Operations
Bureau of Soils
1914